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ABSTRACT

This study is the result of a 1987-88 nutrition survey of Florida farmworkers, and it develops a composite picture of this group's overall health. The survey included a nutritional profile questionnaire identifying factors limiting migrants' access to an adequate diet and a survey examining their nutrient-specific dietary adequacy. The data show that migrant farmworkers experience excessive nutritional deficiencies, often compounded by chronic parasitic infestation. Available literature indicates that the migrant population often suffers from malnutrition-linked health disorders. Substandard and unsanitary housing also pose health risks. The reported mean household income among those studied was $5,667. Nearly one-third of the families reported they had either run out of food or not had enough at some point during the previous year. Fewer than 25% of those interviewed were receiving food stamps. Migrants' diets were especially deficient in vitamin A, iron, calcium, and vitamin C. Dietary inadequacies were most common among migrant females. Maintaining traditional food habits appeared to be very important among respondents, who spent significant time preparing meals. Diets of American black farmworkers were found to be the least adequate. Haitian farmworkers' diets were the most adequate. The document recommends development of a nutrition intervention campaign addressing ethno-specific dietary inadequacies. Also recommended were: improved housing inspection; greater access to public-service programs; and a nationwide effort to study, treat, and prevent parasitic infections among migrant farmworkers. This document contains 69 references. (TES)

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FULL FIELDS, EMPTY CUPBOARDS:

The Nutritional Status of Migrant Farmworkers in America

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FULL FIELDS, EMPTY CUPBOARDS: THE NUTRITIONAL STATUS OF MIGRANT FARMWORKERS IN AMERICA

A REPORT BY PUBLIC VOICE FOR FOOD AND HEALTH POLICY

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Interviewers: Maria Smith, Marge Bublis, and Diane Trevino.

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Reviewers

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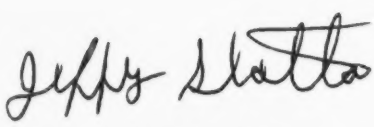

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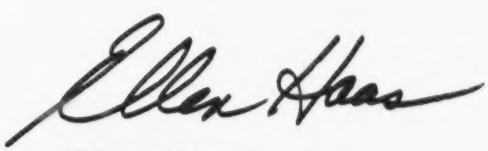
Drector of Nutrition



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PREFACE

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February 28, 1989

Third World conditions exist among migrant and seasonal workers in the United States. They lack clean water, adequate food and decent shelter, including cooking and sanitary facilities. Transient living and dangerous working conditions constantly imperil their health. They suffer high infant mortality rates. Parasitic and infectious disease are common among their children. Malnutrition and nutrition related diseases occur among them far more often than in the general population.

The very individuals who are vital to the national food supply all too often go hungry themselves. Yet, because little is known about the health and nutritional status of migrants, little is done to improve their deplorable situation. Maintaining adequate data on the interstate, agricultural workforce is clearly a federal responsibility but it has been ignored or forgotten. The truth is, the United States does a better job of monitoring migratory birds than the millions of farmworkers who travel from state to state to harvest and process our crops.

Public Voice for Food and Health Policy through this report makes a significant contribution to the information base on migrant and seasonal workers. The nutritional status of this uniquely vulnerable population is presented in the context of a harsh way of life. Careful interviews and a thorough review of the literature are brought together in a portrait of social neglect.

One of the most tragic aspects of this report is that migrant workers do not avail themselves of federal assistance programs. They wrongly believe they are not eligible because they work or they do not apply because of language and transportation barriers. Much more needs to be done to reach migrant and seasonal workers through proven channels of nutrition supplementation -- food banks, food stamps, the special supplemental food program for women, infants and children (WIC). Beyond these efforts, specific dietary inadequacies must be addressed and inspection of migrant housing must be strengthened at every level of government.

This report is a summons to action against the deprivation too long endured by migrant workers.

Mickey Leland
Chairman

About the Photographs

Many of the photographs presented throughout the report were made available to us by the Center for Migration Studies, and Delmarva Rural Ministries. We express our deep gratitude to these organizations for their generosity. In addition, several of the photographs presented were taken at migrant camps in Virginia and in Florida, by the project's director, Jeff Shotland.

The cover photograph was provided by the Center for Migration Studies.

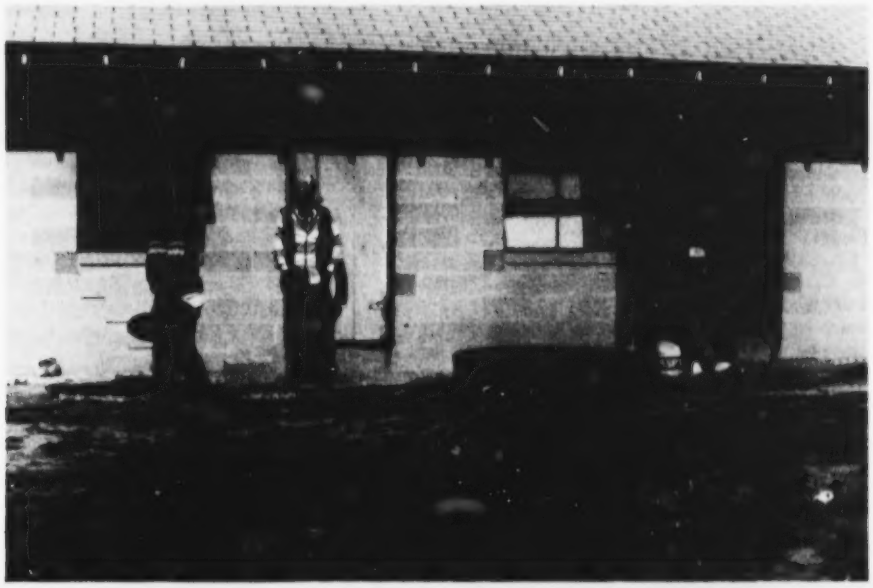

Photo courtesy of Delmarva Rural Ministries

EXECUTIVE SUMMARY

Purpose of the Study

Despite the critical role played by migrant farmworkers in preparing and harvesting the nation's crops, they remain among the most impoverished, poorly nourished populations in the nation. The irony is poignant: laboring amidst an abundance of food, farmworkers commonly suffer from malnutrition and hunger. Added to the usual burdens associated with poverty, migrants face the additional stresses of transiency, isolation, exposure to "toxic" agricultural chemicals, unsanitary housing and working conditions, and limited access to health care.

This study had two principal objectives; the first was to develop a composite picture of the overall health and well-being of the migrant farmworker population; and the second was to contribute to the empirical data available on their nutritional environment. The report's recommendations are based on the information collected from both the study's review of the literature, as well as its empirical findings.

In this report we present the results of a nutrition survey conducted during the fall of 1987 and winter of 1987-1988 of migrant workers in the Virginia portion of the Delmarva Peninsula, as well as in south and south-central Florida. The information reported here updates and expands upon the limited information currently available on this topic. The survey included two principal components: 1) a nutritional profile questionnaire that identifies factors limiting migrant access to an adequate diet; and 2) a dietary survey (twenty-four hour recall) that examined nutrient specific dietary adequacy among the migrant population.

Health and Nutritional Status

Review of data on the nutritional status of the migrant and seasonal farmworker population reveals that this population experiences excessive rates of nutritional deficiencies, often compounded by chronic parasitic infestation. The available literature indicates that the migrant population suffers the effects of malnutrition-linked health disorders with extreme frequency.

In addition, substandard and unsanitary housing conditions pose serious health risks to this population. The housing available to farmworkers is typically substandard, extremely overcrowded, and lacking in even the most basic amenities such as indoor running water or showers, window screens, and in some cases, electricity.

Although little current data on migrants' health status are available, those that do exist reveal an extremely bleak and disturbing picture:

--rates of parasitic disease (worm infestation) among migrant children are many times that among the general population.

--infant mortality rates are considerably higher than for the general population.

--incidences of malnutrition among migrants are higher than any subpopulation in the nation.

RESULTS

* The reported mean household income level among migrants studied was $5,667. The median was $5,000. The majority (approximately 60 percent of migrants) reported annual incomes between $2,500 and $9,000, far below the poverty threshold. Fewer than 10 percent of the sample households reported earnings above $11,000.

* Nearly one-third of migrant families reported they had either run out of food or not had enough food at some point during the previous 12 months.

* Fewer than a quarter of the migrants interviewed were receiving food stamps at the time of the interview. Only about one-third said they had received food stamps at any time during the past 12 months. Of those who had received food stamps during the previous year, nearly half said they had received them for one or two months only. The most common explanation for not receiving food stamps was a migrant's belief that he or she wasn't eligible.

* Migrants' diets were especially deficient in vitamin A, iron, calcium, and to a lesser extent, vitamin C. Dietary inadequacies were most common among migrant females, who were consistently less likely to consume diets that met their Recommended Dietary Allowance (RDA), than were males.

* Despite long and laborious hours in fields or packing houses, to the extent possible, many migrants somehow manage to spend significant time preparing meals. Maintaining traditional food habits appeared to be very important among this population. This was especially true among those who live as family units. Haitians and Hispanics in particular appear to retain their ethnic food customs to a surprising degree.

* For each nutrient examined, a consistently higher proportion of females than males reported inadequate intakes.

* Diets of American Black farmworkers were found to be the least adequate.

* Diets of Haitian farmworkers were found to be the most adequate and varied.

* A large proportion of migrant diets were limited in variety, and in fresh fruits and vegetables, fruit juices, and dairy products.

* Consumption of "fast foods" and foods from convenience stores is common among migrants. Excessive use of salt and fat (often lard) also appeared to be common, especially among the Hispanic and American Black segments of the sample.

RECOMMENDATIONS

* **Dietary Inadequacy**

We recommend the development and implementation of a targeted and innovative nutrition intervention campaign to address the ethno-specific inadequacies in dietary adequacy experienced by the three groups examined.

* **Parasitic Infestation**

We recommend a coordinated nationwide effort to study, treat and prevent parasitic infections among this population. In addition, environmental health standards must be enforced, and projects to improve the sanitation-related environment at migrant camps must be supported and expanded so that constant re-infection can be minimized.

* **Migrant Housing**

We recommend that federal, state, and local authorities responsible for inspection of migrant housing place greater emphasis on the condition and adequacy of food storage and preparation facilities. These and other appropriate agencies should send special notices to those providing housing for farmworkers notifying them of their increased attention to this area.

* **Food Stamp Access**

Outreach

We recommend that the Department of Agriculture provide support for a targeted outreach campaign, undertaken to increase the proportion of migrants who are aware of the food stamp program, and to dispel the misconceptions they may have regarding its regulations, especially those concerning eligibility. Because such a large proportion of the migrant population have sub-poverty incomes, and are therefore likely to be eligible, and because most live close together in camps or heavily concentrated migrant communities, providing outreach to this population is desparately needed and would be particularly cost-effective.

Expedited Services
Regulations determining maximum allowable liquid resources and cash for eligibility for expedited (emergency) food stamps should take into account household size. That amount should increase in a modest, but realistic, amount as the number in the household increases.

Bilingual Staff
Food stamp regulations should require availability of bilingual services in areas experiencing even modest numbers of migrants. To ensure that bilingual services are available in a timely manner, USDA's Food and Nutrition Service (FNS) should thoroughly monitor this component of the program in areas that receive a considerable influx of migrants.

Office Hours and Transportation Problems
All county food stamp offices that experience a significant number of migrants should:

1) Offer at least one evening each week when hours are extended to 8 or 9 pm.

2) Send bilingual caseworkers directly to migrant camps and/or migrant service centers to encourage and accept applications.

* **Expanded Availability of Emergency Food**
We recommend that the Second Harvest Food Bank network develop and implement a national strategy through which to increase the capability of its member food banks to serve migrant farmworkers, especially when they first arrive in a new area, and when unanticipated weather conditions result in acute food needs.

* **WIC Program Entitlement**
We recommend that the WIC program be incrementally expanded into an entitlement program so as to provide benefits to a significantly higher proportion of eligible migrants as well as other low income mothers, infants, and children.

* **Aid to Families With Dependent Children (AFDC) and Medicaid**
The federal government should develop a uniform national application form that states would be required to make available to migrants eligible for AFDC and Medicaid. This form would take the place of existing state forms, thereby standardizing the type of information migrants need to provide to apply.

INTRODUCTION

Photo by Michael L. Kimble
Courtesy of the Center for Migration Studies

*"The problem of malnutrition, undernourishment, and nutrition related disease in the migrant and seasonal farmworker population is pathetically apparent now, and contributes to preventable morbidity and mortality in this easily forgotten population."**

Migrant Conditions

Despite the critical role played by migrant farmworkers in preparing and harvesting the nation's crops, they remain among the most impoverished, poorly nourished populations in the nation. The irony is poignant: laboring amid an abundance of food, farmworkers commonly suffer from malnutrition and hunger.

A significant and growing subgroup among our nation's rural working poor, migrant farmworkers and their families experience problems similar to those of other chronically poor groups. However, added to these conditions are the burdens of transiency, physical isolation, economic insecurity, exposure to "toxic" agricultural chemicals, unsanitary housing and working conditions, and limited access to health care. For the most part they are not covered by standard worker benefits afforded other employees, such as paid sick-leave, unemployment compensation, paid vacation, or overtime pay.

Unlike the agribusiness interests that employ them, migrant farmworkers have little economic, political or social influence. They receive little or no emergency relief in times of disaster, such as the drought of 1988.

Migrants are relied upon to provide the necessary labor involved in all phases of agriculture, from pruning and weeding to harvesting and food

* Quoted from testimony to the House Select Committee on Hunger, on July 31, 1986, by Dr. David Smith, Medical Director of the Brownsville Community Health Center, Brownsville, TX.

processing. While mechanization of agriculture has increased substantially during the past two decades, farmworkers are still needed for numerous crops that can only be harvested by hand and only during a very limited period. They also provide the necessary labor for many of the post-harvest activities involved in food processing, such as driving trucks or grading and packaging produce.

Numerous surveys of migrants' health status and living and working environments testify to the severity of their plight. A recent United States Department of Agriculture (USDA) report concluded that, as a group, migrants are undernourished, undereducated, poorly housed, and underserved with regard to health care.[1] In that report, the author observed, "While not all migrant farmworker families face poverty conditions of this nature, a majority do."[2] Another federally supported study published in 1984 concluded that migrants generally still exist amid Third World health and sanitary conditions.[3]

Numerous other reports have found that migrants are perhaps the most poorly nourished population in our nation.[4] They experience an unusually high prevalence of parasitic infestation,[5] anemia,[6,7] and numerous deficiencies of other nutrients, including vitamin A, and zinc.[8] In addition, more recent research has found that they also experience frequent periods without adequate food.[9]

In this report we present the results of a nutrition survey conducted during the fall of 1987 and winter of 1987-1988 of migrant workers in the Virginia portion of the Delmarva Peninsula, as well as in South and South-Central Florida. The information reported here updates and expands upon the limited information currently available on this topic. The survey had two principal components: 1) a nutritional profile questionnaire that identified factors limiting migrant workers' access to an adequate diet; and 2) a dietary survey (twenty-four hour recall) that examined nutrient specific dietary adequacy among the migrant worker population.

Before presenting the methods and results of the survey, a description of the migrant farmworker population's demographic characteristics is provided, followed by a review of the available literature on migrants' health and nutritional

status. Although accidents, pesticide poisonings, and heat-related disorders pose the most acutely serious and life-threatening risks they face, this report focuses upon conditions relating to their food and nutritional environment.

Barriers to migrant participation in food, health, and nutrition assistance programs are also discussed and recommendations to address these problems also are offered. Several case studies are presented as well, to provide a more complete picture of the conditions faced by migrants.

Definitions:

MIGRATORY AGRICULTURAL WORKER (Migrant Farmworker): Individuals and families who move from their home to another county, state, or country to work mainly in agriculture and who have done so at some time during the previous 24 months.

SEASONAL AGRICULTURAL WORKER (Seasonal Farmworker): Local residents who work in agriculture and have done so some time within the previous 24 months.*

Both migrant and seasonal farmworkers face similar living and working conditions which predispose them to poor health and nutrition. However, because of the unique difficulties that result from their transiency and lack of familiarity with the communities in which they live and work for significant portions of the year, this report focuses primarily on migrant farmworkers. Throughout the report we will refer to migrant farmworkers as either migrants or as farmworkers.

Rationale for the Study

Review of data on the nutritional status of the migrant population reveals that this population experiences excessive rates of nutritional deficiencies, often compounded by chronic parasitic infestation. Migrants suffer the effects of malnutrition-linked health disorders at an extreme

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* As we will discuss later, the lack of a clear, universally accepted definition for either migrant or seasonal farmworkers is a notorious impediment to the provision of services to farmworkers. The definitions provided above are general and will serve only as descriptive, working definitions for this report.

frequency. In addition, given the changes imposed through recently passed immigration law, the health and economic status of this population (a significant proportion of whom were foreign nationals and have already become permanent residents of the United States) takes on heightened relevance and importance.

The need for current information on the health conditions of farmworkers has been repeatedly noted as a priority by the National Office of the Migrant Health Program, which distributes approximately $45 million annually to migrant health centers and providers throughout the nation. And assistance efforts by the various social welfare, food assistance, and health care programs serving farmworkers is severely impaired by a lack of reliable data on this population. Without such information, development of effective interventions targeted to address the most serious problems experienced by this population, is greatly hampered.

Despite the severity of migrants' nutritional condition, we were surprised to find virtually no current assessments of their nutritional status. Instead, what we found were a small number of dated surveys, mostly from the late 1960s and early 1970s, that had been conducted on migrants in a particular county or camp. We were unable to locate any that examined the nutritional status of migrants throughout an entire geographic region, or even state-wide. While the Department of Health and Human Services' 1984 survey of health and nutrition among the United States Hispanic population (the Hispanic Health and Nutrition Examination Survey-HHANES) did include migrants in its sample, only approximately 200 were included, and the results of that sample have not yet been released.

There existed an urgent need for increased availability of current data on the health and nutritional conditions experienced by farmworkers. Public Voice therefore decided to carry out on-site, primary data collection of farmworkers' dietary intake and the barriers they face in gaining access to food assistance programs and an affordable and adequate food supply. We set out to identify the gaps in our knowledge and to begin to build a current knowledge base on the nutritional status of this uniquely vulnerable population.

BACKGROUND

"The migrant farmworker is subjected to extreme poverty, malnutrition and undernourishment, unsanitary and crowded living conditions, poor health standards, toxic biochemicals, and limited field sanitation. These conditions clearly identify a population at risk, living in a 'third world country,' unfortunately and sadly this third world is in the United States."[10]

To meet the sporadic but acute need for short-term labor to prepare and harvest crops, farmers require a mobile labor force to supplement local labor during peak use seasons. Because fruits and vegetables are seasonal and perishable, migrants provide a crucial source of labor.[11] The migrant labor system that has evolved in the US emphasizes mobility for workers and limited costs for farmers. Without such a work force, farmers and food processing operators would be faced with numerous problems, including increased labor costs and increased food wastage due to insufficient labor for timely harvesting.

Although their contribution to American agriculture is vital, farmworkers often work under the worst conditions found in any industry in America. And the severity of their living and working conditions has been institutionalized by a long history of policy decisions based on the strength of the agricultural lobbies rather than on the needs of migrants--who are generally seen as "nobody's constituency." Migrants generally work for the lowest wages allowable, frequently under hazardous conditions. They have little or no job security and receive few if any work-related benefits. Unlike most other American workers, migrants are not covered by most standard worker employment benefits, such as paid sick leave or health insurance, paid vacation, or overtime pay.

The Decision to Migrate

The decision to join the migrant stream is usually one of basic economics. Due to chronic labor gluts in home base areas, such as the Rio Grande Valley

in Texas, and the low wages typical of these regions, unskilled and poorly educated residents find it difficult if not impossible to support themselves, let alone an entire family. In addition to the spur to migration provided by the chronic labor glut, many of the harvests in these areas conveniently end at a time coinciding with the beginning of harvests further north.

Given these circumstances, many are forced to seek employment elsewhere. Migrant farmwork provides workers with the option of maintaining their permanent residence in their homebase communities, while earning wages elsewhere.

Another factor involved in the decision to migrate is family size. In many migrant families, which often include four to six children, some of the children can also work and therefore contribute to the family's overall income. Frequently, when two or three children are old enough to work (8-10 years old), the parents conclude that total family income can be significantly greater if the entire family works in agriculture. For example, the father of a family of 11 with whom the author worked in Colorado had left his job as an auto mechanic in Texas in order to migrate and work the fields with his family. Earning $250/week as a mechanic, he was unable to support the entire family. He found the combined household income to be higher with several members of the family also working, which was only possible if they worked together in the fields. Thus, a system is established in which massive pilgrimages north occur annually.

Data Limitations

It is extremely difficult to characterize the farmworker population; the very nature of farmworkers' lifestyle hampers data collection and research. Among migrants this is especially true. Language barriers, the seasonal nature of work, the long distances between farmworker camps in often remote areas, all serve to impede attempts to conduct systematic data collection.

What is known is that migrant farmworkers are an extremely heterogeneous group. Numerous ethnicities and backgrounds are represented. While Hispanics are thought to comprise the largest group, with American Blacks accounting for the next largest, there is a lack of consensus on this

point. The existence of four primary obstacles impede the collection of accurate migrant statistics:

1. Absence of a consistent definition for migrant farmworkers.

2. A recent and dynamic influx of large numbers of Hispanics from several nations in Central America, as well as Caribbean Islanders, and Asians has created relatively recent changes in the migrant labor pool.

3. Absence of any one specific federal office charged with responsibility for data collection on migrant demographics (except perhaps USDA's Economic Research Service, which does so inadequately).

Socioeconomic Profile

A recent study supported by the National Office of the Migrant Health Program reports that some three million farmworkers (seasonals and migrants combined) and their families travel each year to plant, cultivate and harvest our nation's fruits, vegetables and other agricultural products throughout the United States and Puerto Rico. Of this number, approximately 800,000 are thought to be migrants and their dependents. However, these figures likely underestimate the true number of both migrant and seasonal farmworkers. The undercount is due to exclusion from the calculations the numbers of farmworkers in areas not considered "high impact" catchment areas (in which at least 4,000 or more migrant farmworkers or a combination of migrant and seasonal farmworkers totalling more than 4,000 workers spend at least two months.

Other surveys by the United States Department of Agriculture (USDA), the Department of Labor, the Office of Economic Opportunity and the Department of Health and Human Services have resulted in greatly varying numbers. The inconsistencies stem largely from a number of limitations inherent in their data collection methodologies; inadequate sampling further compounded by the definitional inconsistencies previously discussed.

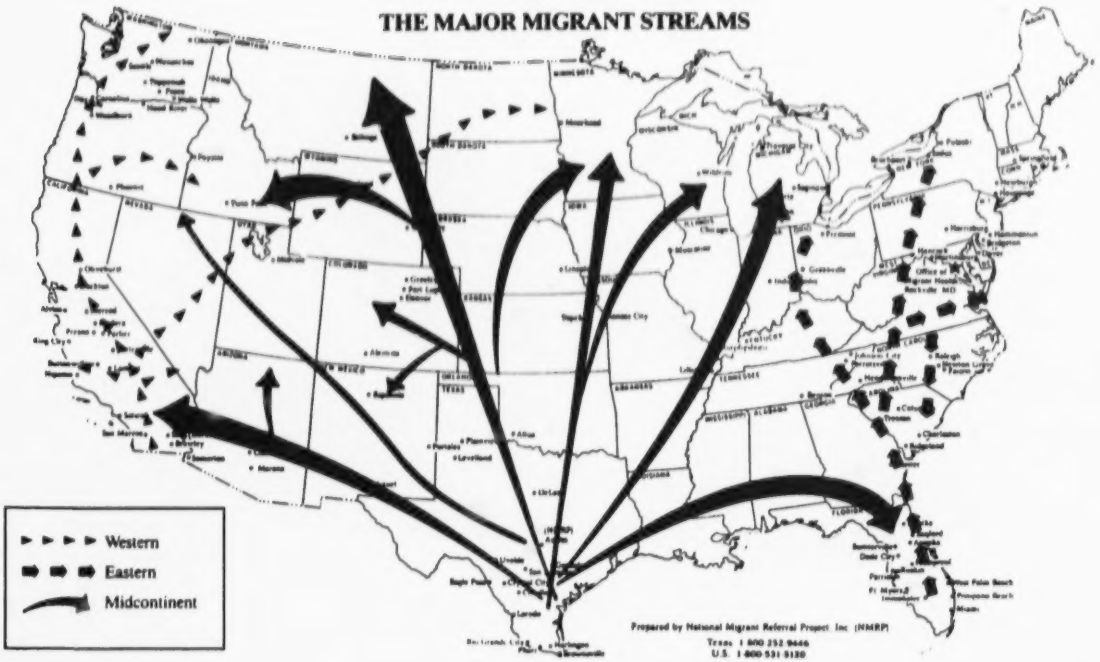
A 1977 USDA study estimated that there were approximately 191,000 migrant workers in the U.S.[12] Studies that attempted to include dependents as well estimated between 600,000 and 900,000.[13] Other, more current estimates of the number of migrant farmworkers range from 317,000 to 1.5 million, and up to 3.5 million seasonal workers, including their dependents.[14]

Geographic Location and Migrant Streams

Migrant farmworkers are numerous in almost every state at some point during the agricultural cycle. While they reside in some states only one or two months annually, they frequently remain for five to eight months in such "home-base" states as Florida, California, Texas and Arizona, where either longer or multiple growing seasons merit their prolonged residence. Migrants also often extend their stays in homebase communities to minimize the negative impact of constant traveling upon their children's schooling--regardless of the availability of work. As a result, many migrants do their traveling during summer months only, when children are on vacation from school.

There are three primary geographic "streams" or routes that migrants follow. (See figure 1).

FIGURE 1
Map of United States Detailing Migrant Streams



East Coast Stream

The East Coast stream is composed principally of American Blacks, Mexican-Americans and Mexican Nationals, Anglos, Jamaican and Haitian Blacks, and Puerto Ricans. This stream includes most states along the eastern seaboard, as well as some of the other southern and central states.

For the most part, individuals traveling in this stream have their home base in South Florida or other southeastern states, although many Puerto Ricans and Caribbean Blacks return to their respective islands each year. An increasing proportion of migrants with permanent residence in Texas have also joined the stream in recent years.

While Hispanics often travel in groups, and with their families, other migrants generally travel without family as single men, often alone or in smaller groups.

Central or Midcontinental Stream

The midcontinental stream originates primarily in south Texas, but also in Mexico. The great majority of migrants traveling in this stream are of Mexican origin, including both Mexican-Americans and Mexican-Nationals. Smaller numbers of several Native American tribes are also represented. This stream flows northward from Texas through the mid-western and western states, and more recently into Florida and some of the East Coast areas. This stream is the largest in numbers of migrants and in geographical coverage.

West Coast Stream

The West Coast stream originates mostly in southern California, as well as Texas, and travels north up through the agriculturally productive areas of California and Oregon to the fruit regions of Washington, such as the Yakima Valley. This stream is also dominated by a Mexican-origin work force. In addition, in recent years, Southeast Asians, primarily Hmong and Cambodians, drop in and out of the California Stream.

While each of these streams originates within an agriculturally productive area, there is generally an overabundance of unskilled labor in these regions, making steady employment difficult to find.

Educational Level

The level of education among the majority of farmworkers and farmworker youth is extremely low. According to 1983 data from the Economic Research Service (ERS), only about 15 percent of migrants 25 years of age or older had completed high school, and of these only 13 percent had attended any college courses. In addition, 57 percent had less than a ninth grade education and 12 percent were classified as functionally illiterate.[15]

A recent study supported by the Office of Migrant Education and planned for release in early 1989 found that only 343,000 of the 531,000 migrant children eligible to participate in Migrant Education programs (64.6 percent) actually participated during the 1986-1987 school year.[16,17] (According to an administrator of the program, inadequate funding precluded participation in the program by greater numbers of migrant children.)

The study referred to above also found that migrant children scored extremely low in standard tests, most falling in the bottom 25th percentile of children nationally. Furthermore, the methods used in arriving at these percentiles did not adjust for age differences between migrant and non-migrant children in the same grades and therefore likely misrepresent the true extent of the disparity. (Many migrant children fall one or two grades behind non-migrant children of the same age and are frequently older than other children in the same grade.)

Income, Benefits, and Access to Social Services

A recent Economic Research Service (ERS) survey found that the average annual income for farmworkers was only $5,291. Of that amount, farm work accounted for $4,638.[18] A recent Colorado study found that the mean family income for migrants in that state (excluding single males) during 1986 was $6,367.[19]

While some farm work does pay well when conditions are good, it is generally seasonal by nature, and

the work very sporadic. After migrants have traveled long distances, unexpected weather can delay work for several weeks. It is not uncommon for farmworkers to be lured to a new area by guarantee of available, good paying jobs, only to find that no jobs are to be had due to a glut of labor or spell of bad weather. With no work and no place to sleep, having spent their money on the trip, farmworkers often find themselves particularly vulnerable. It is common for migrants to wait several days or even weeks after arriving in an area before beginning work.

In addition, due to seasonal and sporadic employment, farmworker income is generally undependable and inconsistent, with long gaps between paychecks.

Compounding the difficulties they face which result from their poor and unreliable incomes, numerous barriers also exist to their utilization of those assistance programs "theoretically" available to them:

* Due to residency problems, as well as relatively high salaries during brief episodes (at harvest) and eligibility criteria that in some cases require residence, migrants are often ineligible for social welfare programs while they migrate from location to location.

* Due to lack of familiarity with the communities they visit and to the brief duration of their stays, migrants are less apt to gain access to the social, economic or health resources of the communities in which they work.

* Due to ethnic and/or language barriers, as well as possibly tenuous and confusing immigration status, migrants are reluctant to make contact with a community's health resources or food assistance program offices.

Unlike most other industrial and clerical workers in the U.S., farmworkers remain for the most part uncovered by what are considered "standard" worker benefits. Largely because they are paid on a piece-rate basis and not regularly salaried, they are excluded from benefits such as sick leave, overtime pay and paid vacation. In addition, many

states continue to exempt employers of agricultural workers from mandatory provision of employer-paid unemployment compensation, as well as worker's compensation.[20]

Living and Working Conditions

Dr. Jesse Ortiz reported that the prevalence of parasitic infestation among farmworkers was 20 times that of the general population.[21]

Other studies have found that urinary tract infections are three to five times more prevalent among farmworkers than the general population.[22] ***Communicable diseases, as well, pose particular problems among farmworkers. Hepatitis, tuberculosis, and other serious viral and bacterial illnesses are unusually prevalent in this population, and the rate of reinfection is particularly high.***[23]

According to the National Safety Council, agriculture has become the most hazardous occupation in the United States in terms of job related deaths and injuries. Farmworkers are exposed to a multitude of living and working conditions that pose serious hazards to their health. Among the worst of these are risk of injury from farm machinery and equipment, (e.g., machetes, knives), poor sanitation, chronic and acute exposure to toxic agricultural substances, job-related physical demands such as constant stooping and lifting heavy boxes full of produce, and constant exposure to hot and humid weather.

Field Sanitation

Poor sanitation at both living quarters and worksites takes a serious toll on the health of migrants. Despite the long work days that migrants spend in the fields, worksites have traditionally lacked both toilets and potable water for drinking and hand washing. As a result, until recently most farmworkers had no alternative but to defecate in the fields and return to work without the benefit of hand-washing. Without toilet facilities, women especially risk developing urinary tract infections and related problems.[24] In addition, the lack of sanitary facilities and clean drinking water in the fields, increased susceptibility among workers to

skin rashes, heat stroke and related disorders, urinary tract and kidney infections, and pesticide-related illnesses.

The Department of Labor finally issued a field sanitation standard in 1987 requiring agricultural employers that meet certain criteria to provide toilets and drinking and washing water. Until then, agricultural workers were the only occupational group in the United States that was not protected by federal regulations requiring both sanitary facilities and potable water at or near the worksite.

Unfortunately, enforcement of the new regulations by the Labor Department is grossly inadequate, according to persons familiar with current migrant field conditions. Observers presently monitoring worksite conditions have expressed concern that a large proportion of employers have failed to comply with the new requirements and that little if any monitoring for compliance has occurred.

The National Office of the Migrant Health Program has recently implemented a number of initiatives in an effort to begin addressing this serious health problem. However, the program's Director, Sonia Leon Reig acknowledges that a great deal more is needed in order to assure that even the minimum sanitary facilities are routinely available, and properly maintained.

Substandard Housing

Substandard and unsanitary housing conditions also expose migrants to serious health risks. The housing available to farmworkers is typically overcrowded, and lacking in even the most basic amenities such as indoor running water or showers, window screens, and in some cases electricity. Migrant housing generally consists of one of three types of structures: 1) severely dilapidated old farmhouses that have not been kept up; 2) barrack-like structures; or 3) run-down trailers or ill-maintained cottages or small shacks. Rooms are usually extremely overcrowded, as several adults or an entire family generally share a single room, sleeping in bunk beds. The meager kitchen facilities usually available are generally shared by several families, often by the entire camp. **In many cases, the crewleader hires a camp cook, who determines the diet of the workers. In these**

situations, the migrant, whether an individual male, or an entire family, has little or no control over his or her own diet or that of their children.

On the West Coast, housing for migrants is extremely limited. As a result of the shortage, many migrants establish temporary tent-style quarters in the fields and groves in which they work. And due to the overall scarcity of housing, migrant farmworkers are increasingly forced to live in their vehicles or camp out in the fields in which they work.

Physical Hardships and Injury

Working in fields involves physically harsh and often dangerous work, including constant stooping, carrying heavy bags or boxes, or stretching from the top of unsteady ladders to reach ripe fruit. It is not surprising that the incidence of fractures and other musculoskeletal problems is extremely high among this population.[25] In fact, agricultural work now exceeds even mining as the most dangerous occupation category, according to the National Safety Council, with regard to frequency of injuries and accidents per worker.

Transiency

Because they are transients in the communities they visit, migrants face additional health risks due to a lack of continuity in medical care. The problem is compounded by a reluctance among farmworkers to take time off work for health reasons for fear of losing earnings or even a job because of missing a day of work. Hours-long waits, have made migrants wary of visiting clinics unless they are experiencing very serious problems. Further adding to the difficulties migrants face in accessing health care is a lack of health insurance.

When migrants are downstream (in their home-base communities), they often have numerous advantages that come with familiarity with one's community. For example, in their homebase, they know the location of inexpensive supermarkets and other stores. In addition, they have the opportunity to establish more permanent relationships with local health care providers and other resources within the community, such as legal counsel and day care providers.

However, **many migrant service providers have noted that access to food assistance, healthcare, daycare, and other government services is less available to farmworkers when they are in homebase communities.** They explain that this reduced access is largely due to the large numbers of farmworkers who return to these areas in acute need of services after travelling and working instream.

Pesticide Exposure

Farmworkers are exposed to pesticide residues on the crops they pick and, when housing is near or adjacent to the fields, they are also exposed in their homes. All too often they are accidentally sprayed while they work in the fields. Current regulations governing pesticide exposure (adequate reentry periods into sprayed fields and pesticide worker training) fail to adequately protect farmworkers. Exposure to pesticides can result in acute or sometimes fatal poisoning, skin rashes or burns, and eye injuries. Some pesticides are known to cause cancer, birth defects or genetic damage. Liver and kidney abnormalities as well as sterility and blood disorders are other chronic health effects, as is decreased nutrient absorption.[26]

Pregnant women and children are especially vulnerable to the harmful effects of pesticides. Several commonly used pesticides have been shown to cause miscarriages, birth defects, and other problems. In addition, pesticides that affect the brain and nervous system can cause learning problems, hyperactive behavior, and seizures among children. Unfortunately, the prevalence of these pesticide related illnesses among this population is not known. Only in California are physicians required to report incidents of pesticide-related illnesses and injuries.

In addition to the negative health effects migrants experience from exposure to pesticides, chronic exposure to dust, pollens, plant and soil fungi and bacteria--all lung irritants and potentially allergy-causing agents--also cause permanent respiratory damage to farmworkers.

Health Status

The problems discussed thus far take a severe toll on migrant health. Poverty and malnutrition experienced by this population, feed on each other to bring about dramatically high rates of illness and disease. In addition to chronic illnesses, migrant farmworkers also experience an abnormally high frequency of acute infections, digestive disorders, and dental disease problems due to their substandard living and working conditions.

In her review of the literature on the occupational health of migrants, Wilk concluded that the most prevalent health related problems among farmworkers include: exposure to pesticides; sanitation related diseases, including chronic diarrhea, parasitic conditions, skin infections; high infant mortality; and chronic and acute respiratory disease.[27]

Of these problems, all except the last are closely linked to nutritional status. And an emerging body of evidence indicates that poor nutritional status, especially inadequate vitamin A intake, further exacerbates respiratory problems by reducing resistance to respiratory infections--especially among children.

Although little <u>current</u> data on migrants' health status are available, those that do exist reveal an extremely bleak and disturbing picture:

-rates of parasitic disease (worm infestation) among migrant children many times that among the general population.

--infant mortality rates considerably higher than for the general US population.[28]

--incidences of malnutrition higher than among any subpopulation in the nation.[29]

Although current morbidity and mortality statistics for the migrant population are nonexistent, several surveys have produced revealing health statistics for this population.

Parasitic Infestation

Although widely believed to be a problem limited to the Third World, **intestinal parasite infection is extremely prevalent in the migrant population,** according to several studies.[30] The exact physiological impact of parasite infection varies according to whether the parasite is a pathogenic or non-pathogenic type, upon the specific type (i.e., Ascaris, E.Coli, Hookworm, etc.) and upon the amount of the parasite present. In each of the surveys of parasitic infection among migrants, well over half the infected individuals were carrying at least one pathogenic variety.[31,32]

In addition to numerous other serious physiological affects upon the health of the infected individual, the presence of parasites has been shown to result in decreased overall nutrient absorption; it is especially detrimental to the infected individual's iron status. Thus, iron deficiency anemia is a particular problem among populations with a high prevalence of parasites. Other effects include acute diarrhea and vomiting, particularly among children. Again, the result is decreased absorption and increased loss of several important nutrients, especially water soluble nutrients such as vitamin C and the full range of B vitamins.

In a parasite-infested environment, an individual consuming an otherwise adequate diet can become malnourished. Although the infected individual consumes adequate levels of nutrients, a significant proportion never reach his or her bloodstream because of decreased absorption and increased expulsion. Among migrants whose health and nutritional status is already compromised, a parasitic infection is doubly serious. Infection is especially serious for children, who are more likely to suffer the consequences of inadequate nutrition far more severely than adults and, as we shall see, are more likely to be infected.

A parasite study of migrant women and children conducted in the Delmarva Peninsula regions of eastern Maryland and Virginia, and southern Delaware, during the 1983 migrant season found that over one-third (34.2 percent) were infected with intestinal parasites. Fully 12 different parasites were found among those sampled. Children between two and ten years and women 18-35 years of age experienced the highest prevalence of infection. The study also found that significantly more

Haitians were infected than either Mexican-Americans or American blacks. Nearly half the Haitians in the study (45.2 percent) were infected. By comparison, fewer than 30 percent of the Mexican-Americans and less than a quarter (23.2 percent) of the American blacks were infected.[33]

The investigators who carried out the above study concluded that "..their life-style is more contributory to increased parasite burden than exposure to infectious agents outside the United States. Close and frequently unhygienic living quarters in campsites of every size, regardless of location, inadequate bathroom facilities, and the sporadic use of complete foot coverings promotes person-to-person fecal-oral and soil-mediated transmission of parasites to all populations living and working in this setting and potentially to others who interact with these populations."[34]

Other parasite studies among migrants have found similar patterns. For example, examining Puerto Rican farmworkers working in Western Massachusetts, Ortiz [35] found parasite infestation in 35 percent of that population. Another study among migrant children in North Carolina found an incidence of 34.2 percent.[36]

Infections.

"Unfortunately, migrant and seasonal farmworkers are placed in an environmental 'niche' that subjects them to numerous insults amplifying malnourishment and undernutrition. These conditions include poor sanitation . . . overcrowding, and poverty, which exposes this population to higher concentrations of infectious agents and more varied and relatively rare strain."[37]

"Communicable diseases, often carried by unusual organisms such as amebiasis, ascaris, shigellosis, brucellosis, yersinia, and hepatitis A, appear more commonly and are more often protracted in duration among migrants as compared to non-migrant and seasonal farmworker populations in community health centers."[38]

Acute and chronic infections in all age groups remain a major health problem in the migrant population. Studies in Pennsylvania,[39] Wisconsin,[40] and California [41] have shown abnormally high prevalences of respiratory diseases such as

tuberculosis, pneumonia, asthma, emphysema, and bronchitis. The death rates from influenza and pneumonia are 20 percent and 200 percent higher than national averages.[42]

Dental

Studies regarding dental conditions of migrants have focused primarily upon children. In one such study, which examined 300 Mexican-American migrant children aged one to seven in Colorado, an average of four caries per child was observed.[43] In a similar population, Larson[44] found that of 127 children surveyed, 47 percent had at least one untreated carious tooth. In a study of migrants in Minnesota,[45] a worse picture was described. In this population of 6-13 year olds, over 60 percent had three or more untreated decayed teeth. Although data regarding dental conditions of adult migrants are lacking, it is likely that extensive problems exist.

Nutritional Status

Nutritional Deficiencies

Although little current data on the nutritional status of the migrant population is available, nutrition problems among migrants have been well documented. The specific problems differ among the various ethnic groups, as well as among different migrant settings, however, the problems reported most consistently were the following: poor vitamin A and iron status; obesity in women; and inadequate height, weight and other anthropometric attainments in children.

In addition to these problems, Chase and Hambidge found an abnormally high prevalence of zinc deficiency among Colorado's migrant population. These studies concluded that the prevalence of hypozincemia is ten times higher in this population than for the entire US.[46] In another study conducted in Colorado, clinically observable vitamin A deficiency was observed at abnormally high levels in zero to eight-year-olds. In addition, symptoms of this deficiency (hypertrophied tongue papillae and follicular hyperkeratosis) were frequently observed.[47] A high frequency of vitamin A deficiency was also observed in Puerto Rican migrants working in New Jersey.[48]

In a study by Dodds and Chase[49] involving zero to seven-year-olds, more than 15 percent of those

surveyed were below the third percentile for height, and more than 15 percent had hemoglobin levels below the tenth percentile. An unusually high prevalence of obesity has also been observed among middle-aged female migrants. In a survey in Florida, it was noted that 20-50 percent of Black female migrants were obese, while 12-44 percent of Puerto Rican female migrants were obese.[50]

Other dietary inadequacies that have been observed among this population include; Riboflavin, vitamins B6 and B12, and Folate.[51]

A survey of nutrition services, conducted by the Office of Migrant Health and Georgetown University's Child Development Center asked staff at 64 Migrant Health Centers questions regarding the current status of migrant migrant utrition and nutrition-related services.[52] The results, while admittedly subjective because they are based on staff opinions rather than review of prevalence data from patient files, included the following;*

-Migrant and seasonal farmworkers are at high risk for developing nutrition-related health problems because of the interaction among a variety of factors such as poverty, migratory lifestyle and cultural practices that are central to their lives.

-The five nutrition-related conditions most consistently mentioned by migrant health center staff as being of particular concern to their migrant and seasonal farmworker clients in 1985 were: 1) poor dental health, 2) overweight/obesity, 3) cardiovascular disease, diabetes, and 4) anemia.

-The major ancillary problems that influenced the nutritional status of the farmworker population were:

1) poor housing and cooking facilities, 2) poor prenatal care, and 3) poor food choices or habits.

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*In response to numerous requests by migrant health staff for specially targeted training in nutrition counseling and assessment methods, as well as for development of culturally relevant nutrition education materials, the Migrant Health Program office recently funded the development of a migrant nutrition manual. The manual is planned for release during winter/spring of 1989.

-A primary barrier inhibiting farmworker's use of nutrition services was a lack of basic information on nutrition therapeutic in nature rather than proactive and preventive. Centers said treatment of more than obvious nutrition problems frequently was not possible due to lack of staff.

-When nutrition services were provided, they were primarily reactive.

-The primary users of nutrition services in 1985 were women, infants and children. Hispanics of Mexican descent were the primary ethnic group served.

Summary of Health and Nutrition

In summary, the available research on migrant health and nutrition describes the migrant population as a group experiencing extremely poor health.* A combination of poverty, substandard and unsanitary housing, continued lack of toilet and hand washing facilities in the workplace, limited access to health care and lack of continuity in the care they do receive, exposure to toxic agricultural chemicals, barriers to nutrition assistance, and several other factors common to the migrant existence, all in an environment of poor nutritional status, result in severely undermined health.

*It is important to note that those migrants whose health is so compromised as to become physically disabled, are generally forced to drop out of the stream. Those who remain healthy continue to migrate and be joined by a constant influx of new migrants. This "healthy worker" effect is true for industries such as construction, mining, and other occupations that require extensive physical labor, and poses a potential bias when studying the full extent of health problems among the farmworker and other heavy labor occupational groups in the workforce.

METHODS OF ANALYSIS

Photo by Phil Decker
Courtesy of the Center for Migration Studies

Selection of Sites for Present Study

Data collection took place in 16 migrant camps located in five southern Florida counties (Glades, Collier, St. Lucie, Hendry, and Lee) and two counties in the Virginia section of the Delmarva Peninsula (Northamption and Accomack) during the fall and winter of 1987/88. The two regions selected represent both "upstream" and "downstream" migrant labor areas.

Migrants often face very different conditions when traveling in-stream compared to downstream. This difference is especially pronounced when the downstream location is their homebase (permanent residence). When in their homebase, migrants have greater familiarity with the community, and they are less likely to be isolated, either socially or with respect to the services available to residents. In their homebase or downstream communities, migrants often comprise a significant proportion of the area's population.

Because of the differing conditions migrants often face when they are upstream as compared to when they are in their home-base communities, both upstream and downstream locations were included in the survey and analyzed separately when possible.

In addition, the two specific regions chosen (the Virginia portion of the Delmarva Peninsula and southern Florida) were selected because they satisfied the following two key criteria:
1) large numbers of migrants pass through and work there each year; and,
2) virtually the full diversity of ethnic groups found in the East Coast migrant population work there at some point during the each agricultural season.*

In the case of southern Florida, an additional rationale for selection was access to several of the nation's largest migrant population centers

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* Ethnic groups not fully represented include Puerto Ricans, Jamaicans, and Whites. However, these groups account for a relatively small proportion of the East Coast Migrant Population.

(e.g., Immokalee, Belle Glade, Ruskin). Both areas offered the typical mix of migrant crew types found elsewhere in the stream (single males, families, intact migrant crews, and individual/independent migrants).

The Sample

While a random sampling design had been intended, numerous logistical complications rendered our sampling strategy impossible to carry out. Initially, migrant worker families and individuals were to be selected exclusively from a sample of the areas' migrant camps. Sampling from local community and migrant health clinics, while considerably easier, was avoided because of the obvious bias that would be introduced by including primarily those who use these services. Instead, interviewers were instructed to conduct the survey at migrant camps or in the homes of migrants rather than at migrant health clinics; the data would therefore be more representative of the local migrant population and not restricted to those who were already a part of the health care system. Because a large proportion of the farmworker population does not use migrant health facilities, relying on the clinic population for our sample could have resulted in a non-typical sample population.

Of the camps located in the upstream counties included in the study, the majority were racially homogeneous. Camp populations tended to be either completely Hispanic or else a mixture of Haitians and American Blacks. In the Hispanic camps, it was common to have several nationalities represented (Mexican, Mexican American, Guatemalan). Of the 13 camps included in the upstream component of the study, approximately two-thirds were predominantly Hispanic, and the remaining third a mixture of American blacks and Haitian blacks.

Unfortunately, in the upstream portion of the survey, we encountered difficulty finding interviewers who spoke Haitian Creole. Therefore, the Haitian population was under-represented in the upstream sample.

This study represents a "first attempt" to determine the nutrient intake of migrant workers and the barriers they face in gaining access to food and nutrition assistance and ensuring for themselves and their families an adequate diet.

While this study can not be extrapolated and generalized to the migrant population at large, it does expand our knowledge of the nutritional environment faced by the migrant population on the Delmarva and south Florida. In addition, **the study's findings point to several critical health and nutrition areas that merit further research leading to a more representative picture of the magnitude of the problems migrants face.**

The Interviewing Process

The majority of interviews carried out on the Delmarva were conducted at farmworker camps. In Florida, on the other hand, most migrants lived in private housing (generally trailers, small cottages or shared motel rooms) rather than camps. Therefore, migrant health clinics provided addresses where migrants lived, and those areas were sampled. Interviews were primarily carried out at private migrant residences.

Training

Survey interviewers were hired from among migrant health clinic staffs. The majority were either health clinic outreach workers or health care providers. Most were bilingual (either English-Spanish or English-Creole).

Each interviewer attended a training session on the sampling and administration of the survey. Instructions and protocol for conducting the 24 hour dietary recall were distributed and reviewed at the training session.

Interviewers were observed, monitored and provided follow-up training when necessary by project staff during the initial interviews. Unless the subject's English was fluent, interviews were conducted in his or her primary language. Therefore, with the exception of the Delmarva subset of the sample, where a significant number of English speaking American Black migrants were interviewed, bilingual interviewers were used almost exclusively. For the nutrition access questionnaire, both English and Spanish versions were used. However, due to difficulties and inconsistencies encountered in the written translation into Haitian Creole, interviewers simultaneously translated the questionnaire for the non-English speaking Haitians interviewed.

Interviewers went door to door seeking out migrants willing to participate in the survey. Those who agreed were asked to complete both the Nutrition Access Profile questionnaire, as well as the 24 hour dietary recall. Interviewers administered the questionnaire either to individuals or jointly to couples (one form per couple) but to obtain separate dietary recalls.

Interviewers explained the purpose of the questionnaire and discussed the amount of time that would be necessary for its completion. In addition, respondents were asked to sign an informed consent form indicating their understanding of the type of information to be asked of them and their willingness to participate.

Nutrition Access Profile (NAP)

Information on several basic demographic characteristics as well as several targeted factors related to the nutritional environment and to the barriers inhibiting migrants' access to food were included in the questionnaire. Questions addressed factors such as income levels, treatment received from the crewleader, access to transportation, kitchen and cooking facilities, food stamp and WIC participation, and frequency of periods without work or without enough food. The profile instrument was administered to adults only, one per couple or individual. It took approximately 45 minutes to administer.

24 Hour Recall

The other instrument used was a 24 Hour Dietary Recall that collected detailed information on everything a respondent ate or drank the previous day, from midnight to midnight. Interviewers were instructed to interview all adults available at the time of their visit. Children 12 and over were to be interviewed directly about their dietary intake. For children under six, interviewers questioned only one child of this age group from each family. Mothers or primary caretakers were interviewed about their child only if the child was at home and not participating in a daycare program, in which case the parent would not be familiar with the child's dietary intake.

During the recall, interviewers asked respondents to determine such key items as methods of preparation, any missing ingredients in combination dishes, and foods eaten between meals, as well as to provide greater specification of the food and its preparation. The interviewer showed various cups, bowls, glasses, serving spoons and a ruler to assist respondents' estimates of serving sizes. In addition, interviewers used a list of probes to assist them in obtaining the necessary information for commonly consumed foods in a consistent manner. Recall data for young children (under 12) were collected from the parent or guardian.

Pre-test

Pretesting for the NAP instrument took place in the Delmarva (upstream) site during late summer and early fall 1987. The first stage of the pretest, conducted during the summer of 1987, was actually a "preliminary" step designed to determine the kinds of information migrants were willing to provide. Investigators spent several days on-site informally interviewing migrants and migrant health staff to assess the overall appropriateness of the questions.

The pre-test was conducted in September 1987. Investigators administered the instruments to migrants primarily to determine their comprehension of the questions and to assess whether the Spanish translation of the instruments was accurate.

Based on that pretest, investigators found it necessary to make major revisions in the instruments for clarity and ease for the interviewers. This change necessitated a second pre-test visit, which was carried out later that month.

A similar process was carried out with the 24 hour recall component of the survey. The principal objective of the pre-test was to train, screen, and prepare interviewers for the activities they would need to carry out.

Sample Size

Several unanticipated problems occurred that limited the actual numbers of completed interviews. The most significant of the problems were an unusually early "hard" frost in the Delmarva that

hastened the migrant exodus back to bases in Florida, Texas, Mexico, Haiti and prematurely closed many camps, and difficulty finding qualified bilingual interviewing staff. One entirely unanticipated problem was the brevity of time available each day for conducting the interviews. The majority of migrants worked until dark, and by the time they had returned home, showered, and prepared and eaten dinner, it was often 8:30 or 9 pm or later.

In addition, while we had thought that weekends, especially Sundays, would be productive interviewing time, we were surprised to find how often migrants are brought to the fields on weekend days. Weekend work was especially common in the Delmarva Peninsula, where the early frost heightened the risk of crop damage. The sporadic nature of the work available, due to many crops having been destroyed by the cold, made crewleaders and their followers alike eager to accept whatever work was offered.

One anticipated problem that did not arise was an unwillingness by migrants to participate in the study due to tenuous immigration status and fear of identification as illegal aliens. We were surprised at the migrants' enthusiasm and cooperation; very few were unwilling to be interviewed.

The nutrition access questionnaire was completed for 196 migrant individuals and households. Completed 24 hour dietary recalls were collected from 214 migrants.

Case Studies:
A case study component was included in the study in order to provide greater understanding and insight into their lifestyles and daily struggles they face.

Several migrant families and individuals were identified by outreach and health staff as typifying the histories, experiences and situations commonly faced by migrant farmworkers. We asked that migrants representing the major demographic groups present in the Eastern Shore migrant

population be selected*.

The following persons were selected for inclusion in the case studies:

--a young, single, Hispanic male new to migrant life (as is the case for many of the younger migrants) whose homebase is in Texas;

--an older American Black male involved in migrant work for over 30 years whose homebase is in Florida; and

--a young, struggling Hispanic family with several school-age children that has set up permanent residence in Texas but still tries to visit relatives in Mexico.

Data Collection:
Data collection took place during October 1987 in the Delmarva Peninsula, the "upstream" site. In Florida, the "downstream" site, data were collected between February and mid-March 1988.

Coding and Analysis of Data
Food Consumption data from the 24 hour recall were coded and amounts converted from household measures to grams by a single, Ph.D. level nutritionist. These data were entered into the computer by the same individual. The nutrient data base used for conversion of food consumption into levels of nutrient intake was Home/Gardens 72 Revised (HG-72R).**

All statistical tests were performed using the Statistical Analysis System (SAS). The nutrient content of the recalls was analyzed in terms of the 1980 Recommended Dietary Allowance (RDA) for each specific nutrient. The proportion of migrant respondents who consumed less than the RDA for the nutrients examined was determined, by gender, for each of the nutrients.

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*Case studies were conducted in the upstream site only.

**HG-72R is based upon the United States Department of Agriculture's food composition data base.

In addition to gender comparisons for adequacy of intake, comparisons between sites (upstream and downstream) and between the three primary ethnic groups included in the study (American Blacks, Hispanics, and Haitians) were also carried out to determine if significant differences existed among these groups. These analyses were carried out for males and females separately in order to control for disproportionate sex compositions of either the streams and the ethnic groups.

Selection of Nutrients for Analysis

Nutrients examined were iron, protein, calcium, vitamin A, vitamin C, niacin, thiamin, and riboflavin. The nutrients included in the analysis were selected for a variety of reasons. Several were examined because they are widely recognized as problem nutrients commonly deficient in the American diet: vitamin A, vitamin C, iron, and calcium. The other nutrients were included primarily because of the availability of food composition data for them, and because they are generally included in nutritional analyses such as these. Adequacy of intake for a number of additional nutrients which are potentially inadequately consumed by this population, such as vitamins B12, and B6, as well as folacin could not be examined for this population because the necessary composition data were not available to us at the time the analyses were carried out.

RESULTS

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Demographic Profile

The demographic characteristics of the sample who completed the Nutrition Access Profile (NAP) questionnaire were slightly different from those who completed the dietary recall section of the survey. This difference was expected, because not all migrants who completed the NAPs were interviewed for the recall and vice versa (for example, children were not interviewed for the NAP). The only significant difference was that the NAP was not administered to children under 18 years of age. Otherwise, the ethnic and gender composition of the two groups was similar.

Nutrition Access Profile Questionnaire

Nutrition Access Profile (NAP) questionnaires were analyzed from a total of 199 migrant individuals or migrant couples. In the upstream sample (the Delmarva Peninsula) 70 questionnaires were collected, and 129 were collected in the Florida counties included in the survey. The ethnic composition, percent of males and females and percent of respondents by site (upstream, downstream) included in the NAP analysis are listed below.

TABLE I

Ethnic Composition of NAP Survey

Ethnicity	Percent
Black Americans	18
Hispanics	55
Haitians	25
Anglo	1
Male	57
Female	43
Upstream	43
Downstream	57

Of those interviewed, over half (55 percent) were Hispanic. The majority of Hispanics were Mexican Americans. In addition, a significant number of Mexican nationals, as well as smaller numbers of Puerto Ricans, and Guatemalans were represented. Another 18 percent were American Blacks, predominantly from the Southeastern United States. One-quarter were Haitian. Whites comprised only 1 percent of the sample.

Examining the ethnic composition in the upstream versus downstream samples, we found several differences. While the proportion of Hispanics was similar in the two areas (55.0 vs 55.1 percent), that of Haitians and Blacks varied. Haitians comprised only 6.3 percent of the upstream sample but 41 percent in the Florida sample*. Conversely, southern Blacks comprised 38.8 percent of the upstream sample but only 2 percent of the downstream sample.

Of the 178 respondents who reported their age, the mean age of the sample population was 32.1 years. However, different subgroups varied in this respect. The Hispanics included in the sample were consistently younger than the other groups. The mean age for the Hispanics was 28.6 years, while that of the Haitians was 36.6 years, and that of the southern Blacks, 38.8 years.

Slightly more than half, 51 percent, were married. Some 40 percent of the respondents reported having children under 18 years of age and currently travelling with them.

With the exception of the Haitian group, which was underestimated in the upstream sample of the survey (in the Virginia portion of the Delmarva, Haitian migrants comprised 12.1 percent of all registered farmworkers[35]), the ethnic composition of the sample was similar to that reported by the health service agencies operating in the regions sampled. The ethnic composition of migrants who were seen at Delmarva Rural Ministries migrant clinics during

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*Because of difficulties locating and hiring fluent Haitian Creole speakers who were capable and willing to participate in data collection in the Delmarva, Haitians are under-represented in the upstream portion of our sample.

the 1986 season can be seen on the following table.*

TABLE II

Summary of Registered Farmworkers

Virginia

	Percent
Black	20
Hispanic	64
Haitian	12
Other	4
Total	100
Male	68
Female	32

Source: Delmarva Rural Ministries, 1986 Summary of Users

In Florida, migrant ethnic composition varied in each of the counties sampled. Therefore, we attempted to attain a sample that closely reflected the composition of each area's migrant community.

Description of Dietary Recall Population
Of the 214 completed recalls collected, Hispanics accounted for the majority of the completed interviews (60.1 percent). This group included Mexican Americans, Mexican Nationals, Guatemalans, and a small number from other Central American countries as well as Puerto Rico. Haitian Blacks accounted for 48 questionnaires (22.5 percent), while American Blacks accounted for 35 (16.4 percent).

After reviewing the 214 dietary recalls, we rejected 17 from the analysis due to either insufficient detail or problems identified by the

*The farmworker population who sought health care at the Delmarva clinic does not necessarily reflect, accurately, the ethnnic composition of the entire farmworker population in the Delmarva. Those who seek health care represent a subset of farmworkers. Nevertheless, these were the most accurate statistics on the population composition available to us.

interviewer*. Missing age information was the most common reason for exclusion. Of the 197 recalls that were included in the nutrient analysis, three were missing either an ethnicity identifier or a gender identifier and were therefore excluded from the ethnic breakdowns (only 194 recalls were included in the gender specific comparisons by ethnic group).

For the 24 hour recall component, ethnic composition, numbers of males and females and number of respondents by site (upstream, downstream) are listed below in Table III.

TABLE III

Ethnic Composition of 24-Hour Recall Survey

Ethnicity	Percent	Number**
Black Americans	18.3	36
Hispanics	60.6	119
Haitians	21.3	42
Total		197
Male	56.6	111
Female	43.4	85
Upstream	35.2	70
Downstream	64.8	129

*Interviewers were instructed to indicate on the recall forms those interviews in which the reliability of the recall was in question. This may have resulted from respondents being too tired or impatient to fill out the form accurately, or from any other reason that resulted in the respondents inability to recall his/her previous day's consumption with an adequate degree of accuracy. The final decision to include or exclude recalls was made by the project director.

**The numbers are not exactly the same because of numbers of dietary recalls with missing gender identifier was different from the number with missing ethnicity or stream identifier

Summary of General Demographics of the Sample Population

The demographic profile that emerges is one of an ethnically diverse population composed equally of individual, non-married migrants (predominately male) and married couples and their families. Although the majority of those interviewed were of Hispanic origin, southern Blacks and Haitians also accounted for large proportions of the sample.

Key Findings from the Nutrition Access Profile

Income

The reported **mean household income** level was $5,667. The median was $5,000. The majority (approximately 60 percent of migrants) reported annual incomes between $2,500 and $9,000. These findings are consistent with findings of other researchers. A recent study by Littlefield and Stout of the health status and demographic profile of Colorado's migrant farmworkers found a mean family income of $6,367.[54]

The income levels reported in this study fall far below those of the general United States population. The median reported family income in the United States was $30,853 in 1987. Among Hispanic families, the reported 1987 median income was $20,306, more than four times the level reported by migrants in this study.[55]

The overwhelming majority of migrants fall far below the poverty threshold, which was $5,778 for an individual in 1987 and $11,612 for a family of four. Fewer than 10 percent of the sample households reported earnings above $11,400. Some 56 percent reported incomes under $5,700.

Transportation

Lack of transportation has been reported as an especially important barrier faced by a large number of migrants. Without personal transportation, migrants are isolated from the communities they visit and lack access to available services. In this situation, migrants are at the mercy of their crewleaders' schedules as they seek to arrange and attend necessary appointments

at health clinics or at other health or food assistance program offices.

Fewer than 39 percent of respondents reported having their own vehicle at the camp. Instead, most reported that their only transportation was the camp bus, the use of which is generally determined by the crewleader. Approximately one in five said they had to pay for rides to go shopping, while 13% said they usually pay for travel to government assistance program offices to obtain WIC vouchers or food stamps. Two-thirds of those said they always have to pay. Of the 13% who reported having to pay someone to take them to medical appointments, four out of five reported frequently having to do so.

Two out of five migrants reported having to depend on their crewleader to drive them places. Of those, over half said they always depend on him for transportation.

These data indicate that a large proportion of migrants must pay for transportation in order to gain access to any of the services available in their communities. In addition, many are forced to rely upon the cooperation, understanding and generosity of their crewleader in order to go shopping, to receive medical attention, or to acquire the needed benefits of food and nutrition assistance programs. Even assuming that crewleaders are well-intentioned and highly cooperative, this situation places migrants in an especially vulnerable, tenuous position. Furthermore, the additional costs incurred by those who must pay add to the extreme difficulties of making do on sub-poverty level incomes.

Periods Without Work

Migrants were asked the number of months during the previous year when they were unable to find work. More than 75 percent reported having experienced periods in excess of one month of unemployment. Of these, nearly 70 percent said they were unemployed two to four months. Another 12 percent said they were out of work only one month during the year; 7 percent said they are typically unemployed five months annually.

Another question was "Which are usually the most difficult months for finding employment?" Responses indicated that July, August, December, and January are the months in which the largest proportion of migrants face unemployment.

Kitchen Facilities

Migrant housing conditions have been reported throughout the literature to be grossly substandard.[56] The 1980s have been a period during which availability of even substandard housing for migrants has undergone a steady decline. Our questionnaire included a brief section focusing on the availability of adequate food storage and preparation facilities, as access to these items directly affects patterns of food consumption and diet.

The results indicate that the majority of migrants interviewed have access to a sink with running water (95 percent), a stove (96.9 percent), and a refrigerator (97 percent). However, nearly two-thirds reported that they have to share these facilities with others outside of their family, and most indicated that they share these facilities with a large number of non-family members. Access to a freezer was less common. Some 18.6 percent of the population reported having no access to a freezer. Of those who had access to a freezer, 54 percent said they had to share the freezer with others in the camp.

Access to Inexpensive Supermarkets

When asked if they had difficulty getting to large supermarkets in the area, 21 percent responded positively. Of those, 60 percent gave "lack of transportation" or "distance to the supermarket" as the primary reason.

Summary

Responses to these questions indicate that, among the sample of migrants, absence of a freezer for food storage is a significant problem. A freezer is useful for storing leftovers and inexpensive frozen food products such as orange juice concentrate. Availability of a freezer also makes possible larger, more economical food purchases.

While only a small proportion of the sample reported having no access to a sink, stove, or refrigerator, the majority shared these facilities

with several others outside of their family. Shared facilities can pose sanitation problems, because individuals lack control over the cleanliness of their food preparation area or appliances. In addition, although not addressed in the questionnaire, on-site observations made by project staff as well as reports from numerous migrant service providers revealed additional deficiencies in food preparation facilities:

--refrigerators and stoves are commonly run down and in poor repair;

--most housing does not have a sanitary area available for food preparation (i.e., cutting or mixing food items); and

--typically, storage space is either lacking or inadequate.

Periods Without Food and Food Expenditures

Migrants were asked if they had either run out of food or not had enough food anytime during the previous 12 months. Nearly one-third (30.6 percent) indicated that they had experienced such episodes. Asked if there were specific times of the year when they are more likely to run out of food, an even higher proportion (43.8 percent) of respondents answered positively. The months most often reported were March, May, June, and July. With the exception of March, these are generally months when migrants are in-stream (not in their home-base communities) and perhaps are more vulnerable to acute food shortages due to both the vagaries of farm work and unfamiliarity with emergency food programs that might be available in their upstream communities. In addition, these periods correspond to those reported as periods without work--however, they occur one or two months after the reported periods of unemployment.

Many respondents noted that a particularly difficult period for them occurs after arrival in a new area. They often do not have work at first, and by the time they receive their first paycheck, several weeks have passed. Others commented that when they are "up north," they frequently run out of money for food by the last week of every month.

Food Stamps

Surprisingly, in view of their low incomes, fewer than a quarter (24 percent) of the migrants interviewed were receiving food stamps at the time of the interview. Only about one-third (33.5 percent) said they had received food stamps at any time during the past 12 months. Of those who had received food stamps during the previous year, nearly half said they had received them for one or two months only.

The most common explanation for not receiving food stamps was a migrant's belief that he or she wasn't eligible. **Presumed ineligibility was the reason given by 47.5 percent of those who responded.** Another 9 percent more said that they simply had not gotten around to going to the food stamp office yet. Following is a list of the reasons given for not receiving food stamps.

The most common responses for not receiving food stamps:

Don't think eligible
We earn too much money
We were told we are ineligible
We don't have papers
No need for them because we have been working
Discouraged by crewleader
Haven't gone yet

Many migrants informally commented that in Florida food stamps were far more difficult to obtain than in Virginia. This situation was supported by our data. Whereas 44 percent of those migrants in the Delmarva site reported receiving food stamps at the time of the survey, only 12 percent of the downstream (Florida) sample were receiving them.

WIC Participation

Of those respondents traveling with children, only a bare majority (51 percent) reported participation in the special supplemental food program for women, infants, and children (WIC). This rate is similar to the national rate, estimated to be less than 50 percent of the eligible population. These results suggest that, as with low-income non-migrants, many eligible migrants do not participate in WIC. To participate in the WIC program, a household must have an income falling below a level set by the WIC state agency, and meet categorical requirements

which also differ among states. Federal regulations specify that states may set maximum income eligibility limits between 100 and 185 percent of the federal poverty threshold.[57]

Because the majority of migrant households have incomes far below those levels, it is likely that a significant number of those in need and eligible for WIC program benefits are not being served.

Sources of Emergency Food

In order to identify whether migrants had access to emergency food during periods of need, we asked whether they had received food from programs other than food stamps or WIC during their stay in the particular area where they were interviewed. Over one-third (35.3 percent) of the population had done so. In the Delmarva sample, a considerably higher proportion (62.5 percent) had received emergency food, whereas in Florida the proportion was considerably lower (13.9 percent). In Delmarva, those who had received emergency food did so at church food pantries administered by Delmarva Rural Ministries. In the Florida sample, a variety of emergency food distribution sites were reported. These included a local "food closet" and a site run by the Coalition of Florida Farmworker Organizations (COFFO).

Key Findings from the Twenty-four Hour Recall

Results of the 24 hour recalls reveal numerous shortcomings in the diets of the migrants surveyed. The data were analyzed both descriptively, and quantitatively. Since our primary objective was to identify the extent of the population with inadequate consumption, our analyses focused on an examination of the proportion with inadequate intakes below the Recommended Daily Allowance (RDA) of the nutrients examined.

I) DESCRIPTIVE ASSESSMENT OF RECALL DATA

Much information about migrants' diets can be explored and observed through a descriptive examination of the recalls. This process identified several clearly distinct ethno-specific dietary patterns that could then be cross-checked with the more rigorous analyses also carried out. Some typical diets are described below.

Initially, typical daily diets are presented for each ethnic group. Based on the recalls collected, these "typical diets" represent the foods most often reported by each group. Following the presentation of the typical diets, a summary, comments and recommendations are provided.

Typical Hispanic Diet

Breakfast

Either: Instant coffee with sugar and milk and either boiled pinto beans-refried in lard or Crisco and mixed with onions and served with homemade flour tortillas,

or

Fried eggs cooked in lard or Crisco and served with homemade salsa (tomatoes and chili peppers), always served with tortillas. Often eggs are also served with refried beans and sometimes chorizo (sausage) or bacon. Pepsi or Coke is commonly consumed with breakfast.

Lunch

Either: Tacos made with corn or wheat tortillas and filled with reheated pinto beans, onion, tomato and sometimes American cheese.

or

Chicken or beef stew, usually made with chicken, onions, jalapeno peppers, tomato, and sometimes potatoes and coriander, served with flour tortillas. Reheated beans are sometimes served as well.

Koolaid or a carbonated soft drink is usually consumed with lunch.

Snack

Several migrants reported eating (unwashed) fruit in the fields during the afternoon, especially those working in citrus groves.

Dinner

Either: Refried beans with fried eggs (salsa), tomato, tortillas and soda or Koolaid

or

Stew made with chicken or beef, oil, cooked with rice, tomato, and other vegetables and served with tortillas, soda or Koolaid

or

A ham sandwich on white bread and soda

Beer (especially among men) and coffee in the evening

Summary of Diet

--frequent consumption of rich sources of complex carbohydrates such as beans and tortillas (both flour and corn) prepared with high levels of fat and eaten several times a day
--frequent consumption of fried eggs
--frequent consumption of tomato, onion and chili peppers
--low consumption of milk or other dairy products
--extremely low consumption of dark green or yellow vegetables (with the exception of tomatoes)
--inadequate consumption of citrus fruits, especially when up north
--koolaid and soda are consumed several times a day (as is beer among the adult males). Occasional fruit juice consumption.
--stews made with inexpensive parts of chicken or beef prepared daily

Comments

This diet appears to be high in fat and salt (much of which is added to the refried beans, egg dishes, and stews) and low in fruits or fruit juices. The infrequent consumption of milk and other dairy products may point to inadequate intake of calcium. Because chili peppers and tomatoes are regularly consumed, it is unlikely that vitamin C or, to a lesser extent, vitamin A status are at risk. However, we also note that the diet does appear to be otherwise lacking in good sources of vitamin A.

The high levels of bean, egg, and grain (from tortillas), and to a lesser extent meat products indicate that intake of protein, several of the B vitamins and probably iron, especially among males whose portions were consistently larger, are likely adequate.

Recommendations

--add rich sources of vitamin A to the diet such as sweet potato or yellow or dark green vegetables
--decrease consumption of salt and fats
--increase consumption of a low fat dairy products such as low fat milk and yogurt, especially among children
--increase consumption of fruit and fruit juices by replacing for some of the soda or Koolaid, especially among children

Typical Haitian Diet

Breakfast

Either: Cold cereal with whole milk with banana

or

Fried eggs cooked in excess of oil, served with boiled plantains, bread and margarine and soda

Lunch

Either: Rice and Beans, boiled plantains, chicken or beef stewed in tomato paste, oil, salt, onion and served with other vegetables soda or milk or canned fruit or juice

or

Ham and cheese sandwich, lettuce and tomato, juice or milk or soda

Snack

Fresh Orange or Grapefruit

Dinner

Either: Rice and beans, boiled plantain, mashed potatoes, stew made of poultry, fish, beef or port, boiled with tomato paste, onion, oil, salt and other vegetables, soda or milk, or fruit juice

or

Cereal (hot oatmeal) with milk, bread, margarine, and canned fruit juice

Summary of Diet

A striking contrast is seen between the diets of Haitian migrants and those of Hispanics.

--rice and beans, which are eaten at least once each day, replace the bean and tortillas consumed as a staple by the Hispanics.

--unlike Hispanics, Haitians frequently consume milk, both by the glass and with cold and hot cereal, which is regularly eaten by this population

--consumption of fruit juices was higher among this population

--boiled plantains are eaten at least daily; however, little other fruit was eaten.

--meat, poultry, or fish was eaten daily by virtually all the Haitians surveyed

--fish, although rarely consumed by Hispanics, is eaten frequently by a significant proportion of Haitians.

In addition, meat, poultry or fish were almost exclusively prepared in a stew with tomato paste, onion, salt, oil and a variety of other vegetables. A large proportion of this population also reported

eating their meals at fast food restaurants.

Comments
The diets consumed by the Haitians interviewed on the whole appear to be relatively complete. However, reviewing the recalls, we observed that while a significant proportion of the Haitians consumed diets that were varied and seemingly well-balanced, there was also a significant proportion whose diets were extremely limited. Nutritionists rightly fear that, as with other ethnic groups who settle in the United States, without appropriate nutrition educational intervention, this Haitian subgroup will move away from its traditional eating habits toward diets higher in fat and fast food.

Inadequate consumption of rich sources of vitamin A may be a problem with this group, as well as with Hispanics. However, the reported diets appeared to provide good amounts of protein, calcium, carbohydrate, vitamin C, and the B group.

Recommendations:
Include a rich source of vitamin A in the diet, such as sweet potato or other yellow or dark green fruit or vegetable.

Typical Black American Diet
The overall adequacy of this group's diet appeared to be the least of the groups examined. A typical day's diet included:

Breakfast: Corn grits, fried eggs with bacon or sausage, toast with margarine, and coffee

Lunch: Fried chicken (from fast food restaurant) or cheese or ham sandwich with soft drink

Dinner: Chicken, beef or pigs feet stewed in water or oil, onion, served with rice, bread, sometimes a green vegetable in the stew. A soft drink, usually soda, is commonly consumed as well.

A significant proportion of many of the single males' caloric intake came from alcoholic beverages generally consumed in the evening.

Summary of Diet
--inadequate consumption of fruits or vegetables of any kind

--inadequate consumption of dairy products of any kind
--frequent consumption of inexpensive pork cuts such as pigs feet
--diets high in salt and fat

Comments
The diets of a large proportion of the American Black migrants were extremely limited in overall variety and were especially low in fruits, vegetables and dairy products. Their diets indicate that vitamins A and C, iron and some of the B vitamins are likely to be inadequately consumed by significant numbers of this group.

Recommendations
Increase overall variety in diet, beginning with incorporation of dark green vegetables (greens such as collards and mustard would be ideal, because they provide rich sources of calcium, vitamins A and C, and iron) and fruits. Decrease consumption of salt and fats.

II) QUANTITATIVE ASSESSMENT OF 24-HOUR RECALLS

In this section we present the results of a quantitative assessment that examined the level of intake of specific nutrients and then compared those levels to each individual's RDA to determine the percent who consumed above and below their recommended allowance (based on the 24-hour recalls). The data are presented by gender, by ethnic group, and by site.

Nutrient Consumption by Gender

Table IV lists the percentage of male and female migrants who failed to consume the RDA for each of the nutrients examined. These data are illustrated on Figure 2.

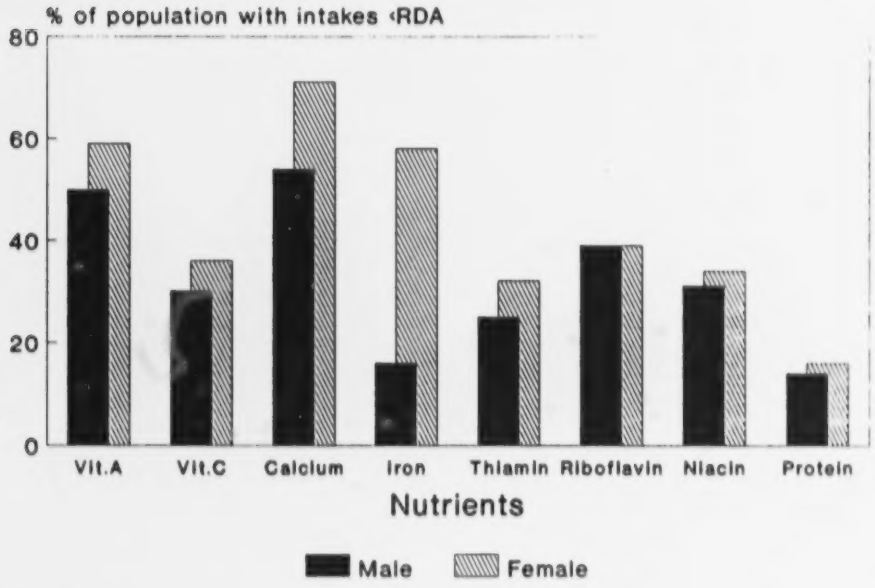
TABLE IV

Percent of Migrant Population With Nutrient Intakes Less Than 100% of the RDA

Nutrients	Female (N=85)	Male (N=111)
Vit A.	58.8	50.4
Vit C.	36.4	29.7
Calcium	70.5	54.0*
Iron	57.6	16.2*
Thiamin	31.7	25.2
Riboflavin	38.8	38.7
Niacin	34.1	30.6
Protein	16.4	13.5

Note: * Male-Female difference significant; $p < .05$

Figure 2: Nutrient Intake



Source: Public Voice

These data reveal the following;

--For each of the nutrients examined (except riboflavin), females were less likely to meet the RDA than were males.*

--Most migrants consumed inadequate amounts of calcium, vitamin A, and iron (among women).

--Calcium intake was below the RDA for nearly three quarters (70.5 percent) of the females and over half (50.4 percent) of the males.

--Inadequate vitamin A consumption was reported by over half of both females and males (58.8 percent and 50.4 percent, respectively).

--Iron consumption was below the RDA for over half the females (57.6 percent) but only 16.2 percent of the males. (Less than adequate intake of iron is more common among females than males in the general population as well.)

--Inadequate consumption of protein does not appear to be a significant problem in this population. Among females, only 16.4 percent and among males 13.5 percent had intakes below the RDA.

--For the remaining nutrients examined (vitamin C, thiamin, riboflavin, and niacin) the proportion of the population with reported consumption below the RDA varied between approximately one-quarter and two-fifths.

To facilitate interpretation of the results, the nutrients examined can be grouped into three categories of risk:

High Incidence of Deficiency: More than 50 percent of the population failed to meet the RDA.

Moderate Incidence of Deficiency: Between one quarter and one half of the population failed to meet the RDA.

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*Unfortunately, examination of intra-household food distribution between members of migrant households or families was limited to these observations.

Low Incidence of Deficiency: Less than one quarter of the population consumed below the RDA.

HIGH INCIDENCE	MODERATE INCIDENCE	LOW INCIDENCE
Calcium	Riboflavin	Protein
Vitamin A	Vitamin C	Iron (Males)
Iron (Females)	Niacin	
	Thiamin	

While a larger proportion of the females than males failed to consume their RDA for each of the nutrients examined, chi square tests revealed that the differences between the sexes in the proportions were significant only for Calcium and Iron.

Nutrient Consumption By Ethnicity

Gender specific intakes were also examined for each of the three principal ethnic groups included in the sample. However, due to the small sample sizes, caution must be exercised in the interpretation of the results, especially for American Blacks and Haitians, for whom the sample size (N) was less than 50 for males and below 10 for females*. These data are presented in Table V and Figures 3 and 4.

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*A small sample size may tend to exaggerate differences between groups, by being more sensitive to individual cases which differ from the majority of cases. The larger the sample size, the truer the picture generated from the data.

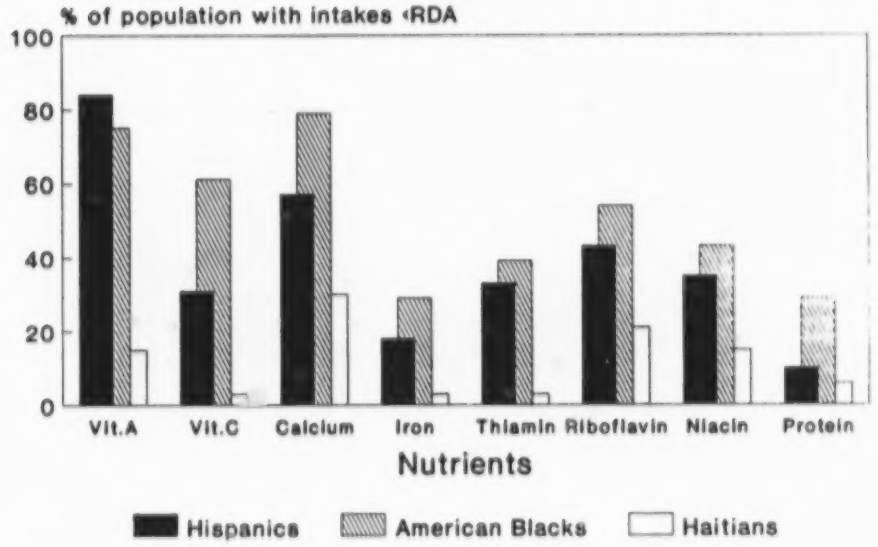
TABLE V

Percent of Sample Within Each Ethnic Group Below Nutrient RDA

Nutrients	Male			Female		
	Hispanics (N=49)	Amer. Blacks (N=28)	Haitians (N=33)	Hispanics (N=67)	Amer. Blacks (N=8)	Haitians (N=9)
Vit. A	61.2	75.0	15.1*	59.7*	87.5*	33.3*
Vit. C	30.6	60.7	3.93*	34.3	75.0	22.2
Calcium	57.1	78.5	30.3*	68.6	100.0	66.6
Iron	18.3	28.5	3.1*	59.7	75.0	33.3
Thiamin	32.6	39.2	3.1*	31.3	37.5	33.3
Riboflavin	42.8	53.5	21.2*	38.8	50.0	33.3
Niacin	34.6	42.8	15.1*	32.8	50.0	22.2
Protein	10.2	28.5	6.1*	17.9	0.00	22.2

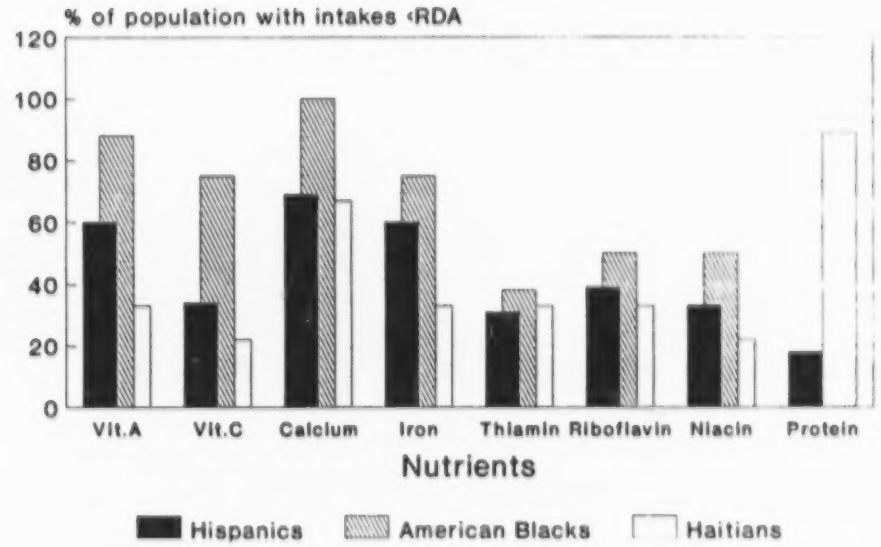
Note: * Indicates significant difference between ethnic groups; $p < .05$

Figure 3: Nutrient Intake for Males
(By Ethnicity)



Source: Public Voice

Figure 4: Nutrient Intake for Females
(By Ethnicity)



Source:Public Voice

These data reveal that, among the three ethnic groups included in the survey, American Blacks were the least likely to have adequate nutrient intakes, while Haitians where the most likely. Adequacy of Hispanic diets fell between that of the other two groups.

In addition, chi square tests revealed that the magnitude of the differences between the three ethnic groups with regard to the proportions consuming above or below their RDA were statistically significant for each nutrient among the males, but only for vitamin A among the females ($p<.05$). For vitamin C among females, the difference, was significant at the $p<.10$ level.

Table VI compares gender specific incidence group frequencies for the three groups. As the table illustrates, the groups varied significantly with regard to their overall dietary adequacy (for example. American Black diets where much less likely to be adequate than were those of the Haitian or Hispanic groups).

TABLE VI

Comparison of Risk Category Frequencies by Ethnic Group

	HIGH INCIDENCE		MODERATE INCIDENCE		LOW INCIDENCE	
	F	M	F	M	F	M
Hispanics	2	3	4	4	2	1
American Blacks	4	6	4	1	0	1
Haitians	0	1	1	4	7	3

Of the nutrients examined, none were consumed either more or less adequately than would be expected by that group's overall dietary adequacy (e.g., the proportion of the Haitian group that reported inadequate consumption was consistently lower, for each nutrient, than the proportion of either of the other two groups). There were no major exceptions to the overall ethno-specific differences in adequacy.

Nutrient Consumption By Site
The proportions of migrants with reported intakes below the RDA are also presented by site (upstream and downstream). See Table VII. These data are illustrated in Figures 5 and 6.

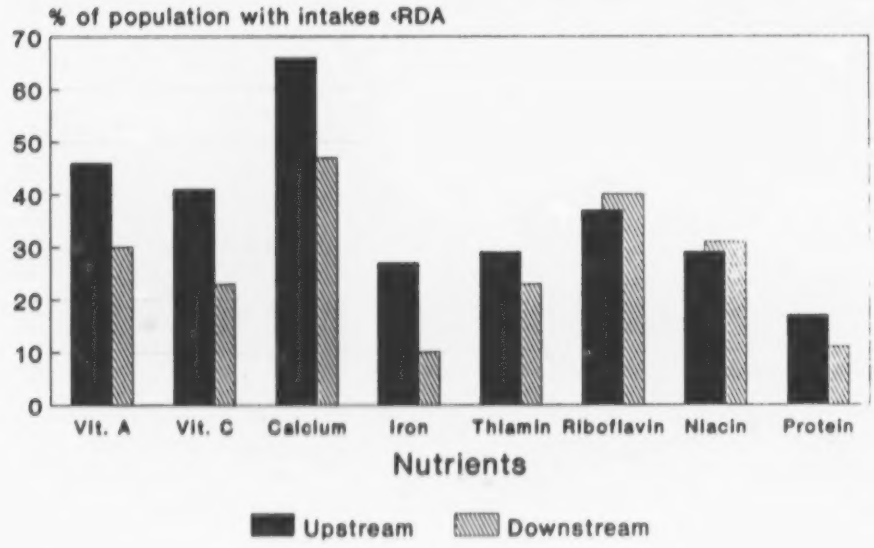
TABLE VII

Percent of Migrant Population With Nutrient Intakes Less Than 100% of the RDA (By Site)

Nutrients	Males		Females	
	Upstream (N=41)	Downstream (N=70)	Upstream (N=29)	Downstream (N=56)
Vit. A	46.3*	30.0*	34.4	44.6
Vit. C	41.4**	22.8**	44.8	32.1
Calcium	65.8	47.1	68.9	71.4
Iron	26.8*	10.0*	58.6	57.1
Thiamin	29.2	22.8	31.0	32.1
Riboflavin	36.5	40.0	31.0	42.8
Niacin	29.2	31.4	41.3	30.3
Protein	17.0	11.4	13.7	17.8

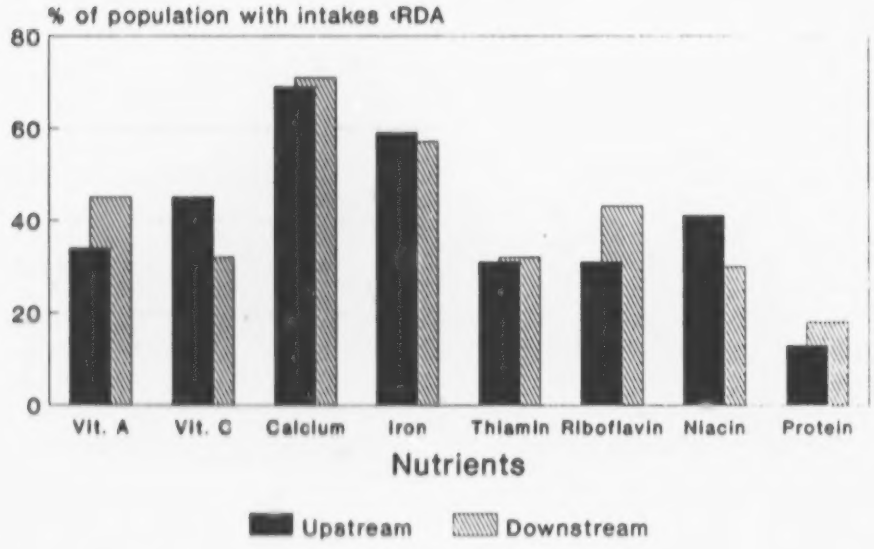
Note: * Upstream-Downstream difference significant; $p < .05$
** Upstream-Downstream difference significant; $p < .10$

Figure 5: Nutrient Intake for Males
(By Site)



Source: Public Voice

Figure 6: Nutrient Intake for Females
(By Site)



Source: Public Voice

Although site specific differences were found, they were not analyzed by ethnicity and sex together because of the excessively small cell sizes that would have occurred. It is likely that many of the apparent differences between the upstream and downstream samples (downstream migrants were less likely to consume inadequate levels of most nutrients than their upstream counterparts) are the result of the differing ethnic composition of the two sites. While the upstream site had a larger proportion of American Blacks, the downstream site had a larger proportion of Haitians.

Several key differences in the dietary patterns of migrants in the two sites were observed:

--While downstream males were less likely to consume inadequate levels of vitamin A than upstream males, ($p<.05$), downstream women were more likely to do so. A similar pattern was observed for calcium, protein, and riboflavin.

--In addition to vitamin A and calcium, downstream males were significantly less likely to consume levels below the RDA than upstream males for vitamin C, iron, thiamin, and protein.

--Only for niacin and riboflavin were downstream males either less likely to consume the RDA, or were the two groups similar with regard to adequacy.

The magnitude of the differences in the proportions that consumed less than their RDA was statistically significant ($p<.05$) for iron and vitamin A, and at the $p<.10$ level for vitamin C.

Summary of Dietary Analyses

The results of the 24 hour recall analyses reveal that a substantial proportion of migrants consume less than their RDA for several of the nutrients examined. The data also indicate that a great deal of variation exists among the three ethnic groups included in the survey, and between male and female migrants with regard to dietary adequacy.

Table VIII illustrates the relative proportions of each ethnic group with consumption below the RDA.

TABLE VIII

Comparison of Dietary Intake Between Ethnic Groups (By Gender)

	Females			Males		
Nutrient	Hisp.	Am.Bl	Hait.	Hisp	Am.Bl	Hait
Vitamin A	**	***	*	**	***	
Vitamin C	*	***		*	**	
Calcium	**	***	**	**	***	*
Iron	**	***	*	**	**	
Thiamin	*	*	*	*	*	
Riboflavin	*	*	*	*	*	
Niacin	*	*		*	*	
Protein						

*--More than 25% were below RDA
**-More than 50% were below RDA
***75% or more were below RDA
No asterisk indicates that 25% or less consumed less than the RDA

This table identifies the following key findings:

--Nutrients for which a high proportion of the population consumed inadequate levels were calcium, vitamin A, and iron among females and, less consistently, vitamin C.

--Female migrants were consistently less likely to consume diets that met their RDA than were males. This was especially true for vitamin A, iron, and calcium.

--American Black migrants consumed the least adequate diets overall, whereas Haitians consumed the most adequate.

--Among Hispanics, vitamin C does not seem to be problematic; however, vitamin A does, as do calcium and iron among both males and females.

--Among American Blacks, vitamin A and calcium appear to pose the most serious problems among males, and among females vitamin A, vitamin C, calcium and iron are all seriously deficient.

--Among Haitians, inadequate consumption of calcium appears to be a problem, especially for women.

Both the descriptive and quantitative assessments that were carried out identify several issues of major concern regarding the dietary adequacy and nutritional status of the migrant population. Analysis of the data revealed that a great deal of variation exists among migrant subgroups with regard to dietary adequacy. **Both ethnicity and gender appear to be closely related to differing levels of risk among the migrant groups surveyed. Female migrants appear significantly less likely to consume diets that are adequate than are male migrants. This was true among each of the ethnic groups examined.**

The diets of American black farmworkers were found to be the least adequate. On the other hand, only a relatively small proportion of Haitians consumed diets that were inadequate. However, due to the high prevalence of parasitic infestation experienced by this population, and the small size of the Haitian sample included in this survey, caution must be applied in the interpretation of these results.

Among each of the groups examined, the nutrients that were found to be the least adequately consumed by the largest proportion of farmworkers were vitamin A, calcium, iron, and (to a lesser extent) vitamin C.*

These results, largely based on the quantitative analyses carried out, are corroborated by the descriptive examination of each group's 24-hour recalls. Through the descriptive analysis of migrant diets, we conclude that, in general the diets typically consumed by migrant farmworkers are severely lacking in variety, in fresh fruits and

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*A brief description of the physiological significance of inadequacies of several of the nutrients found to be most limited in the diets of migrants is presented in Appendix A.

vegetables (although this finding varied significantly depending upon the product being harvested), in fruit juices, and in dairy products (with the exception of the Haitian segment of the sample). Especially critical, a large proportion of the sample population consumed diets that were extremely limited in variety as well as quantity.

Consumption of "fast foods" and foods from convenience stores was also reported by a large proportion of the population. Excessive use of salt and fat (often lard) also appeared to be common, especially among the Hispanic and American black segments of the sample.

MIGRANT PROFILES

Elias Rojas

Elias Rojas is a shy 26-year-old originally from Mexico. He came to this country because there is little work back home, and what little there is does not pay much. He told us that even if you do find a job there, it's difficult to live on it. Wanting to learn English, and in search of a better life, he left Mexico, on his own, at the age of 19. Although he speaks some English now, he is still very hesitant to use it.

He found a job in Brownsville, Texas, at a fabric manufacturing company and stayed there about five years. But he found that the other workers all spoke Spanish, and that it was very hard in that environment to learn English. When a friend told him about good jobs in Virginia, he decided to come North and join the migrant stream for better money and a chance to learn English. He left his fiance, who lived across the border in Matamoros, but he still plans on marrying her as soon as he can get some degree of financial security.

Elias Rojas

As we stood and spoke behind the shack that was his home while in the Delmarva, the other members of his crew, all young Hispanic men, huddled around a small campfire where they ate their meals. The kitchen area was in far too poor a condition to use

for eating. While in the Delmarva, Elias and his crew have been working on cucumbers, squash, sweet potatoes, and peppers. Most labor is paid on a piecework basis, but at the packing house, Elias told us, they pay $4 an hour. Of the $100 or so he earns each week, he sends a large share back home to his family in Mexico. "But you never know when there will be work; it's not sure," Elias says, adding that he would like to find some type of permanent work, such as a packing house or restaurant job.

At the time of the interview, Elias and his crew had not worked for several days. They were waiting for their last paycheck for the two days they had worked the previous week. Once paid, they would get ready for their journey to Florida. Elias wasn't sure what day he was going to get paid. The crewleader told him that it had been a bad summer for him, that he had little money and therefore was not going to pay any of the expenses for the trip back to Florida. With little recourse, Elias, like the others, waits until the crewleader is ready to leave.

A shack with two tiny rooms serves as home to Elias and about a dozen other Hispanic migrants--most from either Texas, Mexico, or Puerto Rico. The kitchen area is filthy, with a dilapidated stove whose oven does not work, rusty pans, and no refrigerator or freezer. Up a dark hallway with worn-down steps are sleeping quarters filled with bunk beds. Outside is a site for a campfire, with some plastic laundry baskets and a rusty boxspring to sit on. Because their rooms are crowded, dark and depressing, the migrants prefer to spend as much time as possible outdoors around the fire.

There is no bathroom or running water in the shack; an outhouse is located in the woods out of sight. A hot water faucet for washing and cleaning is attached to an adjoining house where the crewleader lives with his family.

Elias spends about $25 a week on food--mostly eggs, tortillas, chicken soup. His lunches usually consist of eggs, sandwiches and potatoes. He rarely has fruit or juice. He hasn't run out of food yet, but he's only been in Virginia for a month. Although he appears to be eligible for food stamps because of his low, uncertain income, he

hasn't applied. He says he has never heard of food stamps, and he doesn't know anybody who speaks English well enough to help him apply. He isn't aware that the food stamp office has a bilingual staff who could help him apply.

Elias has made friends with Art Erleda, an older migrant from Puerto Rico who has invited him to join the crew down to Florida. Art says that when they first arrive in Florida they can sleep in his pickup for the first couple of weeks. Then they can get a motel room together for $60 a night, then find two other guys, so it will come to $15 apiece per night.

Art says the nice thing about farm work is you don't have to pay rent, and you can save money by sharing food with the other workers. "And when you run out of money, one of the other guys will share his food with you, that's the way it works. In Florida, the churches will feed you if you can't find work."

However, Elias worries that when he goes to Florida he won't have a place to live or sleep, and the crew leader may not pay him. He also worries that if he works in the fields, he won't be able to get into town to go to school to learn English. On the other hand, if he has a steady job in the packing house, he won't be able to take time off for classes when he wants to.

Elias is new to farmwork, but he says the hardest thing about being a migrant farmworker is his isolation from English-speaking people who could help him learn the language and improve his life. He would like to work in a restaurant or an office, but only after learning English. He wants to leave the migrant stream, but he doesn't know how.

Kitchen at Elias Camp

Fellow migrant eating dinner by campfire

L.C. Williams

A black farmworker whose father was a crewleader, L.C. Williams entered the migrant stream at age seven. Now he is 62, divorced, with a 21-year-old son whom he no longer sees. He has been coming to the Delmarva Peninsula for many years.

L.C. Williams

As LC nears an age when many American workers retire, he feels his economic vulnerability. He has no savings and no permanent job. He will be eligible for Supplemental Security Income (SSI) when he retires, but he wonders if that will be enough to get by on. If there was a time he could have tried to get another kind of work, that time

has passed because of his age, he says. He notes ruefully that migrant workers can't get unemployment compensation because they don't have steady work for long enough to qualify for benefits.

After 38 years as a farmworker, LC is still dependent on the whims of another man for his livelihood. He works at the pleasure of his crewleader, who is solely responsible for who gets hired and what their living conditions will be. The crewleader also gives them rides to the store or to town.

Lately LC's crew has been picking peppers for $4 an hour. This year the work hasn't been good, he says, but you can't expect every year to be good. Last year there was a three-week period between work in Florida and work in Delmarva, but this year they had three weeks of pickles and then five weeks without work.

When the men aren't working, they hang out in the crew bus, which is the only warm place at the camp in the chill weather of early fall. The crew ran out of heating and cooking fuel several days earlier. The farmer didn't want to get more fuel, because the migrants were going to be leaving soon anyway. The workers often run out of fuel for cooking and heating for two or three days at a time. This time there hasn't been heat for nearly a week, and the migrants told their crewleader they wouldn't work unless they got heat.

Migrants often have to sleep in buses and cars, LC says. Motel rooms are expensive and hard to find, and even a room costing $50 or more may have only a bed and no heat. Because migrants don't know an area when they first arrive, they are often taken advantage of until they find permanent living quarters.

The place where LC and the others are staying now is a collection of rundown redwood barracks with tiny bare rooms, concrete floors, single light bulbs dangling in the middle of each room, and bunk beds for two. In warm weather the rooms are hot and airless, but in today's cold weather they are frigid. To protect them against the cold, the workers were promised free coats from a local clinic, but they have yet to arrive.

In the bathroom, a thick black fungus thriving on a shower curtain has spread its way to the floor. The kitchen is also a mess, because the yardman, a migrant in his fifty's, died of a heart attack earlier in the summer, and nobody has taken on the chore of cleaning up.

All the workers share the kitchen. The oven hasn't been working all year, and there is no freezer for storing frozen food. Some workers run out of food routinely, LC says, but he hasn't had that experience himself.

LC relies on food stamps to keep from going hungry. He currently receives $90 a month in food stamps; in Florida he gets $81. In Georgia, the crewleader was jailed, and the crew ran out of food. LC went to the local food stamp office and signed up all the workers as a single household.

Once a crewleader tried to prevent the workers from getting food stamps because he wanted them for himself, LC reports. Most food stamp offices are friendly and helpful, he says, but in Florida that's not the case. Three workers were denied food stamps there because they didn't have social security cards. Sometimes the food stamp offices are crowded, and clients get turned away.

Food stamps are good because you don't have to pay cash up front, LC says. "If I had to buy all my food with cash money, I don't think I would have made it," he reports. "Sometimes in the past we were told we weren't able to get them because we were working and the people didn't know what we were earning."

Why does LC put up with such hard work that pays so little and gives him no economic security? "Lots of places you can't find work you're good at, so you have to try to find work somewhere else to make ends meet," he says. "The local people don't want to do the work that has to be done, so that's why we're here."

LC's Camp

The Garcias

Maria Isabel Garcia is a 26-year-old mother who lives with her husband, Genero Triana, and four children, Frankie, 9; Miguel, 7; Junior, 3; and Petra, who is Genero's daughter from another marriage. Maria dreams of saving enough money to go back to Mexico, where she thinks life will be easier and her children will have a better chance.

Maria grew up in the town of Piedras Negra in Mexico, on the Texas border. Her mother and father are now separated, and her mother is on Medicare and welfare. During a stay in Florida, Maria met someone who suggested she do farmwork. When the work ends in Virginia, she'll go back down to Florida, then to Texas, where she can get unemployment compensation and part-time work picking watermelons.

The Garcias regard Texas as their home, although they only live there about five months, from May through September. Each fall they travel north from Texas to pick fruits and vegetables in whatever location seems promising, then go south to Florida, where there is sure to be work. In addition to Delmarva, they have harvested tomatoes and peppers in Ohio, and fruit in upstate New York, always searching for a secure, decent place where they can earn enough to stay afloat.

The Garcia Family

Maria isn't working now; Genero is picking sweet potatoes to support the family. The work isn't very difficult, she says, but sometimes it's very slow. This year they haven't made much money--$6 dollars the first week, then $20, then $50, despite promises by their crewleader that convinced them to come north. In a typical week they make about $100 per person.

When conditions are good and there is work, Genero earns about $70 or $80 a day in Florida, but sometimes it's less. Sometimes there is no work at all, because when it rains, as it often does in Florida, there is no work and no pay. In Florida there are many different kinds of lettuce to pick. On good days he can pick about 8,000 boxes of lettuce and earn $140. When the money is good, they put money in the bank for the few months they are in Florida.

The most difficult thing about farm work is the times of no work, Maria's husband says. When the family arrived in Delmarva, for example, there was almost no work for five weeks, although there were promises of a few hours here and there. The Garcias worry about feeding and clothing the children during these times, and sometimes he has to borrow $20 or so from a friend to tide him over.

Clothes and food are a constant preoccupation for Maria and her family; it seems the kids are always hungry and always growing out of their clothes. The family rarely skips meals, but they often have to buy the cheapest food possible to make their money last. Maria's family gets food stamps in Virginia, but not in Florida, where the work is more steady and there is no need for the extra help. Maria's son pays cash for school lunch or brings a bag lunch, although he could probably qualify for a free or reduced price lunch. Maria says she hasn't heard about the federal school lunch program.

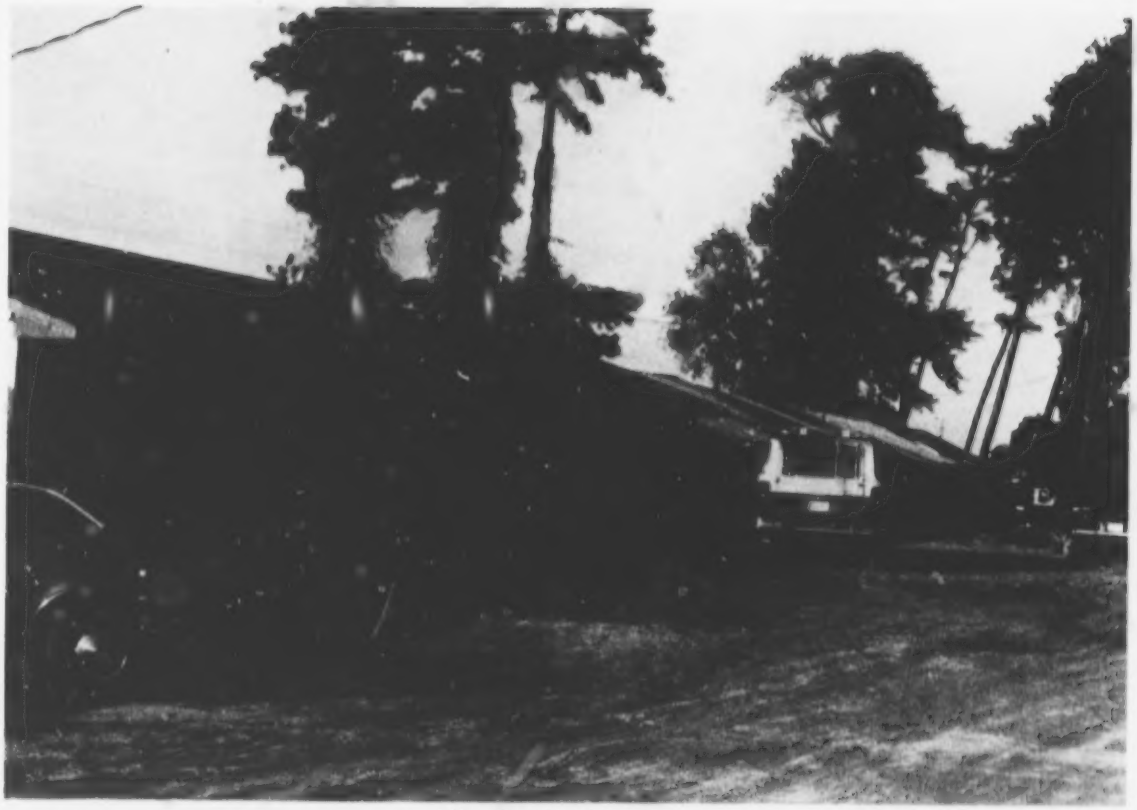
Sometimes there isn't enough food for the adults in the family, but they usually get by with food stamps. It's things such as detergent or other household supplies that they often can't buy. Toys are out of the question, although the children dream of having them.

It's difficult for Maria's children, and she desperately wants a better life for them. Frankie is doing poorly in school, probably because he has moved around so much, Maria says. Junior doesn't go to a child care center because Maria isn't working, and she can take care of him herself. Maria and Junior are currently enrolled in the WIC program, and Maria says that the program helps her very much. She receives coupons for certain foods, and she also discusses with a WIC counselor, her child's diet and his health.

While in Virginia, the Garcias live in a barracks-like apartment that contains a kitchen, a bathroom, and a decent, if modest, kitchen. Maria doesn't like the crowding and the feeling of coldness imparted by the greying cinder block interior. The apartment complex houses about 100 other families, mostly Hispanics like themselves. The children play outside in a dirt parking lot with some rundown pickup trucks and cars for company, and clotheslines running overhead. A foul odor from an adjoining food packing plant pervades the camp at all times, although the Garcias say they have grown used to it. The workers who live in the camp pay no rent, but they are only guaranteed work when it is available in the farmer's factory or fields. In this situation, the crewleader does not go around looking for other work to keep his people busy. They only work when the farmer has work.

The Garcias want to try living in Mexico soon so that Maria's stepdaughter will be able to finish school there. Unfortunately, it takes a week of work in Mexico to earn what the family can make in a day in Virginia. It's a nice life in Mexico if you have money, they say, but if you don't, it's no fun.

Although the Garcias would like to send their children to university in Mexico, it's an impossible dream. Like their parents before them, they are too poor to think of giving their kids a better education than they had themselves. They say they will be content if their children learn to support themselves and their families. "In Mexico, there are many poor people who are intelligent," Maria says, "but there is no money for school."



The Garcias' Camp

DISCUSSION AND RECOMMENDATIONS

Photo courtesy of the Center for Migration Studies

The analyses presented in this report provide an abundance of information about migrant diets as well as many of the factors affecting the overall health and nutritional well-being of the migrant population. In the following pages, these factors are discussed and targeted recommendations offered.

Dietary Inadequacy

Migrant diets were found to provide inadequate levels of several of the nutrients examined. Diets were generally limited and often redundant. Diets of two of the three ethnic groups examined, American Blacks and Hispanics were especially limited. Diets of Haitian migrants, on the other hand, were more varied; while many of the foods they eat are also "traditional" for that culture, their diets also include many foods that are not (e.g., cold cereal and milk). Not all the Haitians consumed adequately varied diets; there appears to be within this population a proportion who consume very limited and inadequate diets.

Haitians drank fruit juices and milk more frequently than either of the other groups. American Blacks consumed the least adequate diets.

Recommendation
To address the high proportion of migrants with inadequate nutrient intakes, and the wide variation in the diets of the three groups examined, we recommend **development and implementation of a targeted and innovative nutrition intervention to address the ethno-specific inadequacies in dietary adequacy experienced by the three groups examined.**

For example, while the diet of Hispanic migrants is generally adequate in vitamin C, due in large part to their frequent consumption of jalapeno (chili) peppers and tomatoes, consumption of vitamin A, calcium, and iron is inadequate. The diets of American Black migrants are especially lacking in vitamin C, due largely to the infrequent consumption of citrus among this population.

The planning of such intervention programs requires that the critical nutritional characteristics, as well the unique food related beliefs distinguishing the targeted sub-populations, be recognized and addressed. Such strategies must incorporate culturally sensitive information, especially with regard to beliefs about food, e.g., Haitians divide all foods into "hot" or "cold" categories (not related to their temperature or spiciness). This categorization determines when certain foods can be eaten, proper food combinations, and identifies certain foods that should not be eaten during certain life stages, i.e., during pregnancy or while breast feeding.

Strategies should include the development of nutrition education workshops for the appropriate staff at migrant health centers, as well as those working in migrant education. Recognition of the specific eating habits and food needs and preferences of each of the target cultures must be built into the design of these workshops. In addition, innovative materials such as posters and videos should be made available that address the specific nutritional shortcomings of each group within the migrant population.

The National Office of the Migrant Health Program, within the Public Health Service's Bureau of Health Care Delivery and Assistance should serve as the central organizing center for such an effort. Along with responsibility for the health of the migrant population, the Office of Migrant Health harbors a great deal of expertise with migrant needs and service provision. The agency has already taken the first steps by supporting a soon-to-be-released Migrant Nutrition Manual.

In addition, the overall effort would greatly benefit from expanded coordination with the WIC program. WIC provides an especially effective vehicle through which to disseminate targeted nutrition education information to migrants, especially those at highest risk--pregnant or nursing women, infants, and young children. In addition, food industry groups, such as the National Dairy Council and others that have expertise in the development of effective nutrition education materials, should be included in this effort. University-based nutrition departments might also provide additional expertise in the development of such materials.

The prevalence of intestinal parasitic infestation among this population, especially among children and Haitians, is shocking. Studies demonstrate that between 20 and 40+ percent of this population are infected. Among children and Haitians, the rates are at the upper end of this range.

The physiological toll of this condition, especially upon nutritional status, can be tremendous, rendering an adequate diet insufficient for the individual to maintain positive nutrient or energy balance. The effect upon children can be devastating, resulting in anemia, growth stunting, and impaired social and cognitive development. (This topic is discussed more thoroughly in the background section.)

In light of the extremely high prevalence of parasites among the Haitian migrants, results of the dietary recall section of this study must be interpreted with particular caution. With approximately one-third of the Haitian population infected with parasites, it is probable that the nutritional status of this population overall, regardless of nutrient intake, is poor. Clinical and biochemical tests for nutritional status are necessary in order to assess the actual nutritional status of this group as well as to determine the extent of the damage inflicted by the parasites.

Recommendation

Due to the extremely high prevalence of parasitic infestation experienced by the migrant population, **immediate development and implementation of a program to address this problem is urgently needed.**

Adequate information is already available implicating poor sanitation environments of migrant labor camps in the spread and reinfection of parasites. Therefore, **funding must be made available for the improvement of the sanitational environment of migrant labor camps. Seed money for such projects could be used to assist in leveraging additional funding through lenders, as well as other in-kind services.**

Mass laboratory screening for parasite infection is both labor intensive and extremely expensive. Therefore, the following additional recommendations are offered:

1) A coordinated nationwide effort must be mounted to target a series of small scale research studies on the major subpopulation groups that together constitute the migrant population. These studies should be conducted within a common time period, use a standardized methodology and be coupled with an environmental health questionnaire that focuses at minimum on sanitation conditions at the work site, temporary home site, and the permanent home site. New arrivals to the United States (by country of origin) should be distinguished from those permanently based in the US.

Because there is already sufficient evidence of high infestation rates among Haitians, mass screening may be indicated, particularly for new arrivals.

2) Migrant clinicians must be trained to screen for pathogenic parasites when treating individuals with symptoms that may be related to such organisms.

3) Environmental health standards must be enforced. Enforcement is ultimately the only way to "treat" the problem of parasitic infestation. Even clinical treatment of symptomatic individuals is useless if, following treatment, they are reexposed either at home or at work.

Migrant advocates must insist that National Field Sanitation standards are adhered to and that toilets, drinking water, and handwashing facilities are available in all field work sites of 11 or more individuals. In addition, to increase access to these facilities by a greater proportion of the migrant population, states and localities must establish standards that go beyond the federal standards and include those who work in sites with less than 11 individuals.

Similarly, local codes regarding home site sanitation must be complied with for migrant farmworkers just as they are for local school teachers and other community and county residents.

Barriers to an Adequate Diet

Results of the Nutrition Access Profile revealed several additional factors that often impair the ability of migrants to obtain a safe and adequate diet. Among the sample population, most migrants had access to basic kitchen facilities, such as a

stove, a sink and a refrigerator. However, the majority share these facilities, as well cooking and eating utensils, with others outside their families. In addition, food storage and preparation space was generally inadequate. Site observations by the investigators also revealed that the kitchens, appliances, and food storage and preparation areas are generally extremely rundown, unsanitary, inadequate, and unsafe. (The actual severity of the food storage and preparation facilities was not revealed by the questionnaire.) These conditions are responsible for the spread of communicable disease and food poisoning, and they hamper migrants' ability to optimize the health and nutritional benefits of their food expenditures.

Recommendation
We recommend that federal, state, and local authorities responsible for inspection of migrant housing place particular attention to **the condition and adequacy of food storage and preparation facilities.** These and other appropriate agencies should send special notices to persons who provide housing for farmworkers, alerting them to the increased attention that will be paid to this area.* The same must be made clear to migrant labor contractors (crewleaders) and should be included in the regulation manuals they are provided.

Assistance Program Barriers

> ***"The mobility, poverty, and substandard living and working environments experienced by many migrants make their receipt of continuous health and social services essential. Unpredictable income and low wages often make it difficult for some migrants to provide their families with everyday necessities. Consequently, their needs for food stamps, WIC and (Commodity Supplemental Food Program) CSFP, health care and other health and social services are immediate."***[58]

*A similar need exists for the inspection of the bathroom and washing facilities available at migrant housing sites.

General Barriers to Delivery of Services to Migrants

While some legislative and administrative actions have addressed the unique obstacles faced by migrant workers, a variety of barriers to food and health assistance programs persist. Addressing these remaining obstacles is central to any efforts to improve migrants' health and nutritional status. The following paragraphs provide a brief description of several of these. (These barriers were largely taken from the USDA report titled "Providing Services to Migrant Farmworkers" previously cited.)

Camp Setting

Frequently, the migrant camp setting in and of itself can impede service delivery. Some migrants travel in crews, arriving in an area by prior arrangement just at the time their labor is needed and leaving shortly thereafter. Not all members of such a group have access to transportation--except that provided by a crew chief. Another common problem is clinic hours that do not coincide with the camp work routine. A family may work in the fields all day, and by the time they are finished with their day's work, local assistance agencies (often a significant distance away) have already closed.

Crewleaders

Crewleaders represent another special problem. As a USDA report on farmworkers' access to the WIC program observed,

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"In no other labor system known in contemporary America does any set of supervisory individuals have such virtually unrestrained control over the lives of others. While an unknown number of farmworkers contract directly with the grower or food processor for their labor, the great majority of farmworkers do not directly control the conditions of their work. Instead, their services are contracted for by a crewleader. The crewleader's business is to recruit and frequently to transport farmworkers from their homebases to areas where agricultural laborers are needed.

Some operate interstate recruiting services in homebase states such as Florida and Texas. Others work exclusively or primarily within the boundaries of a single state, recruiting migrants, seasonal farmworkers, and day-haul crews. Crewleaders are the middlemen between the grower and the farmworker; as such intermediaries, they do not only recruit and transport workers, they also act as supervisors as well, and often handle all arrangements for payment to the worker. Because of their dependency on the crewleader for employment, farmworkers are especially vulnerable to exploitation by irresponsible crewleaders.[59]

The attitudes of some crew chiefs and camp managers often hamper the delivery of food stamps, WIC and other health and social benefits--or even the distribution of outreach materials in migrant camps. It has been pointed out that sometimes these individuals fear that migrants will take time from work to seek program services, or that they may receive program benefits and drop out of work. Because growers control housing and often own the labor camps, it is usually necessary for health and social service representatives to obtain growers' permission to go into the camps.

Some states report that migrants display reluctance to come into clinics that are not migrant health clinics. They may even lack general health knowledge and thus not seek routine health care. Migrants sometimes have a cultural bias against modern medicine and mistrust physicians, preferring to use root medicine and midwives and curanderos ("healers").

Isolation:
The communities to which migrants travel are generally small, rural, and economically dependent on agriculture. The communities often have problems of their own, such as a shortage of health providers, lack of medical facilities and equipment, limited health care, and minimal or nonexistent public transportation.

Locating Migrants
Most states have cited problems with reaching small pockets of migrants sparsely scattered throughout their territory. States have fewer problems

finding migrants when there are large numbers concentrated in one area and when there is a strong local migrant council or farmworkers' group present.

Language Problems

Difficulties in receiving "in-stream" assistance are further compounded by migrants' limited command of English. The communities to which they migrate often lack interpreters and bilingual outreach information, which results in further isolation of migrant families.

Mobility and Transiency

Continual movement from area to area creates major problems for many migrant families. Even if they have managed to receive program benefits in one community, migrants usually find that they cannot continue to receive those same benefits in another area. Migrant families also face difficulties in locating such services in a new and unfamiliar locale. Mobility isolates migrants from traditional sources of health care and other services. In addition, some communities and agencies refuse to accept responsibility for serving migrants because they lack permanent residency. Migrants are often in an area for a short time, and if there is no work or a crop failure, they quickly move on without stopping to obtain services, especially as they are unfamiliar with the location of the various agencies.

Transportation

An evaluation of the WIC Migrant Demonstration Project found that 43 percent of all participants reported that transportation was a problem in getting to and from clinics, as well as to retail grocery stores. An even higher percentage, 48.3 percent, of the nonparticipants interviewed said transportation was a barrier to participation.[60]

Food Stamp Barriers

Participation in the food stamp program is especially critical for the migrant farmworker population. Their meager incomes, and the uncertainty of even that income, added to the unusual difficulties they face in gaining access to affordable food markets, combine to make food stamp

participation uniquely vital to this population's nutritional wellbeing. Persons excluded from the program are far more likely to experience times without adequate food and are more vulnerable to the nutritional vagaries of migrant life. Despite special provisions in food stamp law that target specific barriers to migrants' participation, a significant proportion of the migrant population remains unserved by this program.

Recommendations to address migrant food stamp program barriers are presented together at the end of the food stamp section.

Outreach

As the results of the survey demonstrated, the most significant single reason for the low levels of participation in food stamps appears to be simply that **many migrants are unaware of their eligibility for these benefits.** The little outreach that once was available to this population was terminated during the early years of the Reagan Administration. As program regulations have changed, misinformation among both caseworkers and migrants about program eligibility has increased a great deal.

The study also revealed numerous obstacles preventing large numbers of needy and eligible migrants from gaining access to the food stamp program. **According to survey results, the single most common reason for migrants' non-participation is a belief that they are ineligible because they work.** This misperception is common among the general population as well. Migrants, however, present a unique situation, because the majority, although employed, earn significantly less than the income eligibility cutoff for the program. In addition, because of their lack of transportation and the language barriers they often face, migrants are disproportionately underserved by this and other assistance programs. The problem seems especially serious when migrants are in Florida, where only 12 percent of migrant households sampled reported receiving food stamps. Many of the migrants interviewed noted that in Florida there is much more "red tape" and "hassle" in obtaining food stamps.

Expedited (Emergency) Food Stamp Service

Unusual Need

A particularly difficult time for migrants occurs when they first arrive in an area in search of work. Because many migrants and migrant families are destitute when they first arrive in a community, many are in serious need of expedited (emergency) food stamps. Several weeks typically go by before employment is found and a paycheck received. This initial period in a new area, represents what is often the most difficult time for food security. It is during this "transition" that access to expedited food stamps is critical. Unfortunately however, numerous barriers exist to deny food to migrants in even the most dire circumstances.

The case studies presented in this report and the testimony of migrant service providers support these observations. When migrants are not provided expedited service of food stamps, long delays in urgently needed food assistance is the result. Migrant Legal Action Program (MLAP) Attorney James Strothmann, an expert on assistance program barriers faced by migrants, observes that "although this problem varies in degree from state to state, it occurs to some extent in every state in which migrants reside or pass through." In addition, according to Strothmann, "frequently delays result from caseworker and/or client misinformation. In many cases, however, overly restrictive regulations are responsible." The lack of knowledge about the existence of expedited service also poses a significant barrier to participation--especially in areas with large numbers of workers who are new to farm work.

Allowable Liquid Resources and Household Size

Another significant problem is related to the household composition definition and the allowable level of liquid resources and cash on hand for expedited eligibility. In order to be eligible for expedited service, a household must have no more than $100 in liquid resources such as cash or savings, regardless of the number of persons who are considered part of the household.

In practice, this requirement creates a critical barrier for migrants, who tend to have larger families and often live in multi-family or extended family groups, all considered one household. It is

not at all unusual for a group of 20-30 migrants to share one living space. And while individuals in such households may not be willing to share their income or resources with the others, any money they have is included in the $100 maximum and can thus prevent the entire household from receiving expedited food stamps. Less than $5 or $10 of savings per person can render entire households of migrants ineligible, even though employment may be several weeks away.

Another regulation that often results in inappropriate denial of food stamps to needy migrants is disqualification of households from expedited service if any member of the household expects to earn $25 during the ten days following his or her application, regardless of the size of the household. (This income can be money expected by an individual, or the expected earnings of all household members combined.)

Housing Shortage

The problems discussed above have been exacerbated in recent years by the growing shortage of available migrant housing. The extensive cuts in federally supported housing programs ushered in during the early Reagan years affected migrant housing severely. Combined with the economic crisis experienced by farmers in the 1980s, the housing cuts inflicted significant damage on farmworker housing stock. Rather than repair and maintain aging homes and barracks, farmers are forced to let them go further into disrepair. Increasing numbers of houses are being torn down. As a result, during the 1980s migrants have been increasingly forced to double up with regard to living quarters, and increasingly forced to move into severely overcrowded, frequently substandard conditions. An additional negative consequence resulting from this situation is that many migrant household sizes have increased--resulting in larger numbers of households exceeding the $100 maximum cash on hand requirement for expedited service (which does not take into account household size).

Further adding to the negative impact of the housing shortage on migrants' food purchasing power, current food stamp regulations reduce per capita food assistance to larger families (households) on grounds of economies of scale. Yet many migrant families do not have adequate

financial resources, refrigeration or food storage facilities to take advantage of these theoretical increases in efficiency. In addition, the formula used to calculate benefit levels overstates the economies of scale available even for more traditional large households.[61]

Availability of Bilingual Staff

Lack of adequate bilingual staff in food stamp and other social service program offices has long been recognized a serious barrier to participation for large numbers of migrants. A particular problem is that many of the counties in which migrants work are rural and have relatively small populations. The food stamp offices in such counties may not be required to provide bilingual services even though the number of applicants swells during the migrant season. Again, according to Jim Strothmann of MLAP, "In many states with seasonal migrant population influxes, local welfare agencies have resisted hiring Spanish speaking caseworkers as permanent employees even when staff vacancies arise,". As a result of the absence of permanent bilingual staff, there is often a delay between the arrival at the food stamp office of the season's first migrants and the time when bilingual staff are hired and sufficiently trained to begin accepting Spanish or other non-English speaking interviewees.

In some migrant impact counties, bilingual college students are often hired during the summer. However, students frequently are unavailable until weeks after the initial flow of migrants into these areas. The gap in time therefore occurs at the most critical time for migrants--when they are most likely to need food stamps on an emergency basis.

Literacy

Because many migrants are either totally or functionally illiterate, they require assistance in completing their applications for food stamps and other programs. Failure to provide such assistance is a particular barrier to migrant participation in areas that use longer application forms, or in offices without bilingual forms or translation services. While these services were traditionally provided by local migrant service organizations, these organizations have experienced severe budget reductions during the 1980s and have been forced to cut back on these services considerably.

Office Hours and Transportation Problems
Often migrant workers are forced to choose between working or making a required visit to the food stamp office. Very few counties have been willing to provide alternate hours of service to accommodate migrants.

Failure to Refer Migrants to AFDC and Medicaid
During the most recent two or three years, several states have expanded AFDC and Medicaid eligibility to include two-parent households. And a number of states have expanded Medicaid coverage to include larger numbers of working-poor, and near-poor families. Therefore, the numbers of migrants who are eligible for these benefits has increased significantly. In light of this development, providing referral to these programs or, at a minimum, informing migrants of these programs and their potential eligibility takes on greater importance. Migrant service staff of all agencies must be made aware of these recent changes in program requirements and inform migrants about these programs.

Complexity of Application Forms
Most migrants have received very little formal education, and many are barely literate in any language. However, as they travel from state to state, they must cope with a myriad of application forms for WIC and other programs. In many states, application forms run up to 40 pages, and several states still do not provide a Spanish version.

Expanded Availability of Emergency Food
Even with expedited access to food stamps and WIC, many migrants continue to experience periods of inadequate food access during parts of the year because of meager and unsteady employment. Food insecurity is a special threat when migrants are away from home base.

Food Stamp Recommendations

Recommendation
(For outreach recommendations see page 89).

Recommendation
Regulations determining maximum allowable liquid resources and cash for eligibility for expedited (emergency) food stamps should take into account household size. That amount should increase in a modest, but realistic amount as the number in the

household increases.

Recommendation
Regulations should be written requiring availability of bilingual services in areas experiencing even modest numbers of migrants. One practical and cost-effective solution would be to employ a person from the community to be available for telephone translation for non-English speaking applicants. The availability of such bilingual persons is likely in most areas, because there are often numerous migrants who choose to settle in such communities.

To ensure that bilingual services are available in a timely manner, USDA's Food and Nutrition Service (FNS) should monitor this component of the program. Monitoring should be especially thorough at program offices located in areas that receive a considerable influx of migrants. The availability of effective written materials prepared in the appropriate languages should be closely watched.

Recommendation
All county food stamp offices that experience a significant number of migrants should:

1) Offer at least one evening each week when hours are extended to 8 or 9 pm.

2) Send bilingual caseworkers directly to migrant camps and/or migrant service centers to encourage and accept applications.

Recommendation
Increased efforts should be made to foster coordination between the food stamp program and other assistance programs such as AFDC, Medicaid, and WIC. Joint referrals should be made routinely among assistance program agencies to expedite migrants' access and submission of application to these programs during their short stay in the area.

The federal government should develop a uniform national application form that states would be required to make available to migrants. This form would take the place of existing state forms, thereby standardizing the type of information migrants need to provide to apply. Such a form would likely reduce the reluctance of many migrants to complete and submit their applications as they

travel to new states.

Recommendation
To address the acute food shortage periods that migrants frequently face, food banks, community pantries, and other forms of direct food assistance must be expanded. Where such agencies are not available, they should be launched as soon as possible.

We recommend that the Second Harvest Food Bank network take the following actions:

1) Collaborate with the National Office of the Migrant Health Program to identify areas in which significant numbers of migrants reside temporarily for work, so that special programs can be established early in their stay.

2) Assess the capability of affiliated or member food banks to quickly identify and respond to the unusually high demand for emergency food that often occurs when migrants first enter new communities in search of work.

3) Identify and recruit new agencies as member or affiliates in areas impacted by migrants where either inadequate or no food banking currently exists.

4) Initiate closer collaboration with migrant service agencies, especially the National Office of Migrant Health.

In order to reduce community tensions, whenever possible, food banks should be made available for the benefit of <u>all</u> individuals who experience food shortages, including migrants, rather than only for migrants alone.

WIC Entitlement*

Although WIC program regulations state that migrants are to be put at the head of WIC waiting lists when insufficient funds exist to serve all eligible applicants, current funding is adequate to serve fewer than half the individuals eligible for benefits from this highly cost-effective program.

Recommendations

We recommend that the WIC program be incrementally expanded into an entitlement program so as to provide benefits to a significantly higher proportion of eligible migrants as well as other low income mothers, infants, and children. This action would, over time, greatly reduce the numbers of eligible migrants, who despite the severity of their need, are relegated to a position on the program's waiting list.

Transportation

Because migrants lack transportation of their own, many needy and eligible families are kept from participating in the WIC program by the difficulties they encounter traveling to WIC program offices from what are often remote farmworker camps.

Recommendation

In order to increase participation among eligible migrants, we recommend that mobile WIC clinics be used by those WIC offices that experience significant numbers of migrants in their counties. To keep costs to a minimum, county school buses or minivans could be used for this purpose. These "mobile clinics" would travel directly to migrant camps during the evenings, conducting intakes and issuing benefits.

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*The Food Research and Action Center will soon (early 1989) be releasing a guide that examines barriers to participation in the WIC program among specific population groups, including migrant farmworkers. The guide will also provide specific examples of the actions taken by some states to overcome several of these barriers.

General Recommendations to Increase Migrant Participation in the WIC and Food Stamp Program

Effective outreach is critical to ensuring that all potential migrant participants are aware of available food assistance programs. Because such a large proportion of migrants are generally eligible for these programs, and because they often live in either camps or heavily concentrated migrant communities, outreach to migrants is especially cost-effective. In light of the additional challenges to a healthy pregnancy posed by migrants' living and working conditions, the WIC program needs to attract women early in their pregnancy.

Outreach for food stamps and WIC could be performed on a contract basis by local farmworker organizations, which are generally known and trusted by migrants and usually more than willing to provide this type of service. To achieve these collaborative relationships with farmworker groups, state agencies should aggressively foster supportive working relationships between local assistance agencies and the farmworker organizations that are present in the state.[62]

Well-placed posters are an important part of an effective outreach strategy. All too often, however, posters are placed only in program offices, such as health clinics, or WIC and food stamp program offices, where they are seen only by those already in contact with the assistance program network. Although these are good places, too, posters must be placed in such locations as camps, supermarkets, laundromats, and any other places where migrants are likely to visit. It is important that such advertisements be available in the languages spoken by the target population.

Finally, visiting the migrant camps during evenings and weekends, knocking on doors or holding small meetings are very effective ways to familiarize potential participants with available assistance programs.

Health Care Barriers

Migrants face similar obstacles in obtaining health care services as they do in accessing other assis tance programs. In a landmark survey

conducted by Trotter[63], the following reasons were identified as the principal barriers to receiving health care among migrant farmworkers:

-Loss of pay
-Amount of time it takes to get an appointment
-Unaffordable health care
-Distance to facility
-Child care unavailable
-Transportation unavailable
-Don't want to bother the doctor
-Don't know the doctor
-Don't believe in doctors (take care of own health)
-Can't speak English
-Afraid of what will be found
-Believe doctors are prejudiced
-Friends/relatives had a bad experience

It is apparent that, while many of the barriers are similar to those that effect utilization of food stamps and other assistance programs, there are additional factors which involve a lack of familiarity with the health care system.

Recommendations
These findings demonstrate migrants would benefit from a better understanding of the health care system so that they will be less likely to delay or avoid needed medical care. Outreach efforts are needed for all migrants but would be most effective if targeted to groups of migrants who have only recently arrived in the United States.

Health Insurance
"Most migrant and seasonal farmworkers and their families cannot afford health insurance. In 20 states, farmworkers are not covered by workers' compensation, and even in states where they are covered, they often do not know--and are not told--that they can collect compensation for work-related injuries or ailments. When farmworkers retire or are disabled, they may find that though they have worked a lifetime they are denied Social Security benefits. Employers may violate Federal or State laws that require them to report income for each worker rather than paying all income to the head of household."[64]

Recommendation
In light of their limited and undependable wages, and the acute and chronic health risks posed by farm work, it is critical that farmworkers be guaranteed health coverage. Recognizing their unusual need for such coverage, we recommend universal health care for all hired agricultural workers. To achieve this, creative options for funding and implementation must be explored.

Clinic and Program Office Hours:
Inconvenient scheduling of clinic hours is another commonly faced barrier to participation that also affects migrant access to health clinics as well as other programs. In the evaluation mentioned above, a large proportion of migrants who not participating in the WIC program often told interviewers that clinic hours were inconvenient.

In addition, many workers will not schedule appointments for health care services if they think they cannot afford to pay, unless they already know the fee scale. If an appointment means taking time off from work because offices are only open during the 9-5 time schedule, many farmworkers will not go. Instead, they will wait until bad weather or a health emergency.

The migrant WIC evaluation project found that 21 percent of the nonparticipants interviewed and 12.5 percent of the participants interviewed noted that to make clinic appointments they often had to leave or miss work. Wilk[65] also found limited health clinic hours to be a serious barrier.

Recommendation
Local health and assistance program offices must be flexible in their hours so that they may accommodate the unusual and unpredictable work schedules of migrants. Because migrants often cannot work on rainy days, these are good days for seeing migrants at the clinic. Therefore, some means of providing increased numbers should be identified and practiced. Whenever possible, to minimize the amount of lost work time, coordination of hours with several service providers (e.g., health clinic, WIC, and food stamps) should be carried out so that fewer trips and time off work are needed by the migrants.

APPENDIX A

Physiological Significance of Nutrient Deficiencies
Even marginal deficiencies of any of these nutrients which appear to be inadequately consumed by this population can have serious physiological affects. In the following paragraphs, we discuss several major physiological consequences that result from inadequate consumption of the nutrients that appear least adequately consumed by this population.

Vitamin A:
Vitamin A plays several important and diverse physiologic roles. It is essential for maintaining the normal condition of mucous membranes throughout the body--a function that has recently been recognized as important in providing resistance against infection, especially critical among children. Vitamin A is necessary for several visual processes, for normal bone growth, and for healthy skin and tooth enamel.[66] It is especially needed during infancy and early childhood, when deficiency can lead to reduced nutrient absorption resulting from damaged intestinal epithelium.

Among the most critical and only recently recognized result of vitamin A deficiency is an increase in infant and early childhood mortality. Such deaths are primarily the result of lowered resistance to infection among this especially vulnerable age group.[67] Resistance to infection is especially critical among migrant children, who are constantly exposed to a myriad of communicable diseases and infectious agents due to poor sanitary conditions.

There is also a growing body of more recent evidence to suggest a role for beta carotene (a precursor of vitamin A) as a cancer prevention agent.

Iron
Iron deficiency also takes its most serious toll among children. Iron deficiency anemia decreases the body's ability to transport oxygen to cells throughout the body. As oxygen transport is diminished, cells lose their ability to metabolize energy efficiently. As the rate of energy

mobilization declines, fatigue, weakness, and dizziness set in.

If anemia persists, a wide range of debilitating physical and psychological conditions ensue, including: decreased resistance to infections, impaired learning and cognitive development in children, and decreased work capacity.[67] The physiological outcomes of this condition are especially detrimental to children whose normal development depends upon their ability to keep up with their peers in school. With cognitive development impaired, a child loses the ability to develop normally and reach his or her potential. In this regard, even marginal iron deficiencies have been demonstrated to hinder the pace of normal learning.[68]

Among pregnant women, poor iron status results in a higher prevalence of low birthweight, prematurity, fetal death, and other birth abnormalities.

In light of the exceptionally high prevalence of intestinal parasites that frequently cause anemia in migrants, our findings regarding dietary inadequacy of iron among this population are especially critical. Migrant children are triply handicapped by parasites, by their diets, and by the constant transiency that makes schooling difficult if not impossible.

Calcium

Calcium also plays numerous essential physiologic roles throughout the body, most obviously as a major component of bones and teeth. Adequate calcium status is also necessary for normal functioning of several other critical metabolic processes.

Because normal blood calcium levels are homeostatically controlled, it is on the bones, not on the blood, that calcium deficiency exerts its impact. Prolonged inadequate intake of calcium can cause rickets in children and osteomalacia in adults. These conditions can also be caused by poor vitamin D status, as well as by hormonal problems, which can cause decreased absorption of dietary calcium as well as bone decalcification. Although the causes of osteoporosis are still uncertain, the preponderance of information suggests that adequate

lifelong intake of calcium is a wise deterrent.

Extremely low calcium levels were identified among a large proportion of the migrant population. This finding was particularly true among the American black respondents, but also among Hispanics. It is likely that vitamin D status among this population is adequate because of migrants' unusually high exposure to the sun.* However, their poor levels of consumption of dairy products of any kind merit concern and further examination.

*With sufficient exposure to sunlight, significant amounts of vitamin D is manufactured by the body.

REFERENCES CITED

1. United States Department of Agriculture, Food and Nutrition Service, Providing Services to Migrant Farmworkers, Washington, DC, 1986.

2. United States Department of Agriculture, Food and Nutrition Service, Providing Services to Migrant Farmworkers, Washington, DC, 1986.

3. Trotter, R. T., II, "Project Happier (Health Awareness Patterns Preventing Illnesses and Encouraging Responsibility). Final Report of Survey Results: Migrant Family Survey, US Department of Education Grant (143c), December 1984.

4. Testimony to the House Select Committee on Hunger by Dr. David Smith, Hearing on Hunger Among Migrant and Seasonal Farmworkers, Washington, DC, July 31, 1986. Includes cite from; Hicks, W., Migrant Health: An Analysis. Primary Care Focus, July/August, 1982.

5. Wilk, Valerie A., The Occupational Health of Migrant and Seasonal Farmworkers in the United States, Kansas City: National Rural Healthcare Association 1985.

6. Wilk, Valerie A., The Occupational Health of Migrant and Seasonal Farmworkers in the United States, Kansas City: National Rural Healthcare Association 1985.

7. Testimony to the House Select Committee on Hunger by Dr. David Smith, Hearing on Hunger Among Migrant and Seasonal Farmworkers, Washington, DC, July 31, 1986. Includes cite from; Hicks, W., Migrant Health: An Analysis. Primary Care Focus, July/August, 1982.

8. Chase, H.P., Hambidge, K.M., Barnett, S.E., Houts-Jacobs, M.J., Lenz K. Gillespie, J: Low Vitamin A and Zinc Concentrations in Mexican-American Migrant Children with Growth Retardation. American Journal of Clinical Nutrition 33(11): 2346-9, 1980.34-36 in my original

9. Littlefield, C., and Stout, C. L., A Survey of Colorado's Migrant Farmworkers' Access to Health Care, International Migration Review, Colorado, 1987, Vol 21.

10. Testimony to the House Select Committee on Hunger by Dr. David Smith, Hearing on Hunger among Migrant and Seasonal Farmworkers, July 31, 1986. Includes cite from; Hicks, W., Migrant Health: An Analysis. Primary Care Focus, July/August, 1982.

11. US Department of Agriculture, Economic Research Service, Agricultural Economic Report 582, The Agricultural Work Force of 1985, Washington, DC, March 1988.

12. Migrant and Seasonal Farmworker Program. U.S. Department of Labor, Employment and Training Administration, 1977.

13. Stockburger, C., Community Services for Children of Migrant Farmworkers - A States Report. ERIC Clearinghouse on Rural Education and Small Schools, Nov. 1977.

14. Wilk, Valerie A., The Occupational Health of Migrant and Seasonal Farmworkers in the United States, Kansas City: National Rural Healthcare Association 1985.

15. United States Department of Agriculture, Food and Nutrition Service, Providing Services to Migrant Farmworkers, Washington, DC, 1986.

16. Summary of State Chapter I Migrant Education Program Participation and Achievement Information: 1986-1987 School Year. Decision Resources Corporation. January, 1989.

17. The National Office of the Migrant Health Program, DHHS, Trends in Nutrition Services at Migrant Health Center, Nutrition and Migrant Health. Washington, DC, December 1987.

18. US Department of Agriculture, Economic Research Service, Agricultural Economic Report 582, The Agricultural Work Force of 1985, Washington, DC, March 1988.

19. Littlefield, C., and Stout, C. L., A Survey of Colorado's Migrant Farmworkers' Access to Health Care, International Migration Review, Colorado, 1987, Vol 21.

20. The National Office of the Migrant Health Program, DHHS, Trends in Nutrition Services at Migrant Health Centers, Nutrition and Migrant Health, Washington, DC, December 1987.

21. Ortiz, JS, "The Prevalence of Intestinal Parasites in Puerto Rican Farm Workers in Western Massachusetts" in American Journal Public Health, 1980, 70:1103-1105.

22. Wilk, Valerie A., The Occupational Health of Migrant and Seasonal Farmworkers in the United States, Kansas City: National Rural Healthcare Association 1985.

23. The National Office of the Migrant Health Program, DHHS, Trends in Nutrition Services at Migrant Health Centers, Nutrition and Migrant Health, Washington, DC, December 1987.

24. Wilk, Valerie A., The Occupational Health of Migrant and Seasonal Farmworkers in the United States, Kansas City: National Rural Healthcare Association 1985.

25. The National Office of the Migrant Health Program, DHHS, Trends in Nutrition Services at Migrant Health Centers, Nutrition and Migrant Health, Washington, DC, December 1987.

26. Wilk, Valerie A., The Occupational Health of Migrant and Seasonal Farmworkers in the United States, Kansas City: National Rural Healthcare Association 1985.

27. Wilk, Valerie A., The Occupational Health of Migrant and Seasonal Farmworkers in the United States, Kansas City: National Rural Healthcare Association 1985.

28. Littlefield, C. and Stout, C. L.; A Survey of Colorado's Migrant Farmworkers' Access to Health Care, International Migration Review, Colorado, 1987, Vol 21.

29. US Department of Agriculture, Food and Nutrition Service, Providing Services to Migrant Farmworkers, Washington, DC, 1986.

30. Ungar, B., Iscoe, E., Cutler, J., and Bartlett, J., "Intestinal Parasites in a Migrant Farmworker Population" in Archives of Internal Medicine, March, 1986, 143:3, 513-515.

31. Ungar, B., Iscoe, E., Cutler, J., and Bartlett, J., "Intestinal Parasites in a Migrant Farmworker Population" in Archives of Internal Medicine, March, 1986, 143:3, 513-515.

32. Ortiz, JS, "The Prevalence of Intestinal Parasites in Puerto Rican Farm Workers in Western Massachusetts" in American Journal of Public Health, 1980, 70:1103-1105.

33. Ungar, B., Iscoe, E., Cutler, J., and Bartlett, J., "Intestinal Parasites in a Migrant Farmworker Population" in Archives of Internal Medicine, March, 1986, 143:3, 513-515.

34. Ungar, B., Iscoe, E., Cutler, J., and Bartlett, J., "Intestinal Parasites in a Migrant Farmworker Population" in Archives of Internal Medicine, March, 1986, 143:3, 513-515.

35. Ortiz, JS, "The Prevalence of Intestinal Parasites in Puerto Rican Farm Workers in Western Massachusetts" in American Journal of Public Health, 1980, 70:1103-1105.

36. Migrant Health Newsline, Clinical Supplement, National Migrant Referral Project, Inc., Austin, TX; April/May, 1987.

37. Testimony to the House Select Committee on Hunger by Dr. David Smith, Hearing on Hunger among Migrant and Seasonal Farmworkers, July 31, 1986. Includes cite from; Hicks, W., Migrant Health: An Analysis. Primary Care Focus, July/August, 1982.

38. Testimony to the House Select Committee on Hunger by Dr. David Smith, Hearing on Hunger among Migrant and Seasonal Farmworkers, July 31, 1986. Includes cite from; Hicks, W., Migrant Health: An Analysis. Primary Care Focus, July/August, 1982.

39. Rodriguez, A., W. Hoffman, The Working and Living Conditions of Mushroom Workers. Delaware and Pennsylvania Advisory Committees to the U.S. Commission on Civil Rights.

40. Slesinger, D.P., Health Needs of Migrant Workers in Wisconsin, Unpublished Paper, 1979.

41. Fuentes, J. The Need for Effective and Comprehensing Planning for Migrant Workers. American Journal of Public Health, 64:3, 1974.

42. Siegel, E. Migrant Families: Health Problems of Children. Clinical Pediatrics 5:635-640,1966.

43. Chase, P., Kumar, V., Dodds, J., Sanderlich, H., Hunter, R., Burton, R., Spalding. Nutritional Status of Preschool Mexican-American Farm Children. Ameri J. Disease Child 122:316-324, 1971.

44. Larson, L.B., J.M. Dodds, D.M. Massoth, and H.P. Chase. Nutritional Status of Children of Mexican-American Immigrant Families. Journal of the American Dietetics Association 64:29-35, 1974.

45. Walker, J. Schools Catch Up. Compact 1977.

46. Chase, H.P., Hambidge, K.M., Barnett, S.E., Houts-Jacobs, M.J., Lenz K. Gillespie, J: Low Vitamin A and Zinc Concentrations in Mexican-American Migrant Children with Growth Retardation. American Journal of Clinical Nutrition 33(11): 2346-9, 1980.

47. Chase, H.P., Hambidge, K.M., Barnett, S.E., Houts-Jacobs, M.J., Lenz K. Gillespie, J: Low Vitamin A and Zinc Concentrations in Mexican-American Migrant Children with Growth Retardation. American Journal of Clinical Nutrition 33(11): 2346-9, 1980.

48. Quinones, M., A. Nakah, D. Louria, H. Baker, and D. Devlin. A preliminary study of circulating vitamins in a Puerto Rican migrant farm population in New Jersey. American Journal of Public Health 66:172-173, 1976.

49. Chase, P., Kumar, V., Dodds, J., Sanderlich, H., Hunter, R., Burton, R., Spalding. Nutritional Status of Preschool Mexican-American Farm Children. Ameri J. Disease Child 122:316-324, 1971.

50. Shotland, J., Migrant Workers: Their Health and Nutrition Status and the Programs and Legislation That Affect Them, Washington, DC, 1982.

51. Quinones, M., A. Nakah, D. Louria, H. Baker, and D. Devlin. A preliminary study of circulating vitamins in a Puerto Rican migrant farm population in New Jersey. American Journal of Public Health 66:172-173, 1976.

52. Runyan, D., Morgan, P., Nutrition and Migrant Health, Trends in Nutrition Services at Migrant Health Centers; Georgetown University Child Development Center, Washington, DC. 1987

53. Delmarva Rural Ministries, Progress Report, Summary of Registered Farmworkers, 1987

54. Littlefield, C., and Stout, C.L.; A Survey of Colorado's Migrant Farmworkers' Access to Health Care, International Migration Review, Colorado, 1987, Vol 21.

55. US Department of Commerce, Bureau of the Census, Current Population Reports, Consumer Income, Series P-60, No. 161, 1988.

56. Rodriquez, A., Hoffman, W., The Working and Living Conditions of Mushroom Workers. Delaware and Pennsylvania Advisory Committees to the U.S. Commission on Civil Rights.

57. WIC Facts, the Food Research and Action Center, Washington, DC. 1988.

58. US Department of Agriculture, Food and Nutrition Service, Providing Services to Migrant Farmworkers, Washington, DC, 1986.

59. US Department of Agriculture, Food and Nutrition Service, Providing Services to Migrant Farmworkers, Washington, DC, 1986.

60. From US Department of Agriculture, Food and Nutrition Service, Providing Services to Migrant Farmworkers, Washington, DC, 1986.

61.Phone conversation with Jim Strothmann of the Migrant Legal Action Program.

62. US Department of Agriculture, Food and Nutrition Service, Providing Services to Migrant Farmworkers, Washington, DC, 1986.

63. Trotter, R. T., II, "Project Happier (Health Awareness Patterns Preventing Illnesses and Encouraging Responsibility). Final Report of Survey Results: Migrant Family Survey, US Department of Education Grant (143c), December 1984.

64. Wilk, Valerie A., The Occupational Health of Migrant and Seasonal Farmworkers in the United States, Kansas City: National Rural Healthcare Association 1985.

65. Wilk, Valerie A., The Occupational Health of Migrant and Seasonal Farmworkers in the United States, Kansas City: National Rural Healthcare Association 1985.

66. Whitney, E., Hamilton, M., Understanding Nutrition, West Publishing Co., 1977.

67. House Select Committee on Hunger, Staff Report, Vitamin A: An Urgent Nutritional Need for the World's Children, United States Congress, Washington, DC, 1985

68. Pollitt, E., Testimony to the House Select Committee on Hunger and the Subcommittee on Health and the Environment of the House Committee on Energy and Commerce, May 16, 1985.

69. Pollitt, E., Testimony to the House Select Committee on Hunger and the Subcommittee on Health and the Environment of the House Committee on Energy and Commerce, May 16, 1985.

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